

**IJA # 3311**

**Archival Materials from the Shamash Secondary School**

Amesbury Mass. 1858

to the Hon. Secy of the

War Dept.

Washington

Dear Sir

I have the honor to

acknowledge the receipt

of your letter of the

11th inst.

in relation to the

2nd of the

15th of the

15th of the

15th of the

15th of the

## Lower Certificate

DICTIONATION  
PASSAGES

JUNE 1954

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

DICTIONATION PASSAGES

*[The stress-marks, which are printed before the stressed syllables, are given as a guide for the first and third readings. The approximate time to be taken for the first reading is shown at the end of each passage. All punctuation marks are to be dictated.]*

## PASSAGE I.

'Every 'summer / we ex'changed / the 'stale 'air of the 'city / for 'life on a 'farm / in the re'mote 'country. / I have 'two 'special recol'lections / of this farm, / 'one being the oc'casion when the 'youth / who spent 'most of his 'holidays with us, / and con'sidered him'self / en'gaged to my 'sister, / 'promised me 'sixpence / if I would 'ride a 'thin 'black 'pig / 'round the 'yard. / For 'some 'reason or 'other / we were 'dressed / in 'clean 'lace 'frocks / and 'when, / after being 'thrown / into a 'muddy 'duck-pond, / I was 'dragged into 'father's 'study / by our in'furiated 'nurse, / it was easy to 'see / he could 'hardly 'keep his 'countenance. / The 'other 'incident / was when I 'bribed a 'cowman / to 'let me 'see a 'pig 'killed. / The ter'rific 'scolding that 'followed / was un'necessary, / since for 'months 'afterwards I felt 'ill / when'ever I 'heard a 'pig 'squealing.

[52 seconds.]

[TURN OVER

## PASSAGE II.

I 'looked at the 'bird's 'nest / on the 'ledge of 'rock, / then 'started 'down the 'side of the 'cliff, / 'keeping to the 'grassy 'spots / and a 'voiding 'those / where the 'rock was 'bare. / It was 'not 'too 'difficult, / and I 'knew it would be 'easier / to 'climb 'up a'gain, / for 'climbing 'up / you can 'see where you are 'going, / while 'getting 'down / you 'have to 'guess, / or 'trust to your 'feet / to 'feel for the 'holds. / The 'grass was 'dry / and it was 'not 'strongly 'rooted; / but I 'knew how much 'weight / I could 'put on it / be'fore it 'started to 'give 'way. / It was 'not un'til / I was 'just a'bove the 'nest / that I 'found 'anything 'difficult. / 'Here the 'surface was 'crumbly; / but 'using my 'hands and 'knees / as a 'brake, / I 'slid 'down to the 'very 'ledge / where the 'nest 'was.

[53 seconds.]

## PASSAGE III.

The 'great 'ice 'pack / is a 'series of 'small 'flat 'islands / 'not 'more than about 'four 'feet 'high / at the 'edge, / with a 'rise or 'hummock / 'here and 'there, / and 'all 'covered with 'dazzling 'snow. / In 'hard, / 'frosty 'weather, / 'these 'islands are 'all 'joined to'gether, / but towards the 'end of the 'season / they 'separate and be'gin to 'move. / You have to 'watch your 'chance / when 'leaping from 'one 'island / to a'nother, / and 'jump at the 'moment / when the 'two are 'pretty 'close to'gether. / If you 'miss your 'leap, / 'in you 'go; / but the 'man 'with you / will 'quickly 'throw you / the 'end of a 'rope, / and 'up you 'come. / 'Not to 'hurry / in a 'case of 'this 'kind / 'might 'mean the 'loss / of 'one or 'both' legs, / as the 'moving 'ice / might 'close 'in on you / and you would be 'squeezed 'flat.

[54 seconds.]

## PASSAGE IV.

We are 'always 'having 'trouble / from 'people who 'park their 'cars / out'side our 'front 'gate. / 'During the 'day, / when my 'husband is at the 'office, / I spend 'half my 'time / 'dashing 'out of the 'house / to 'tell them / 'not to 'leave their 'cars 'there, / but the 'drivers have 'generally disap'peared / be'fore I can 'catch them, / 'leaving the 'car 'doors 'firmly 'locked. / This 'morning, / 'just as I was 'bending / over the 'kitchen 'sink, / I 'heard / the fa'miliar 'squeal of 'brakes / and the 'slam of a 'car 'door. / I rushed 'angrily 'out / with my 'hands / all 'covered with 'soap-suds. / To my sur'prise / the 'driver was 'standing by his 'car, / 'waiting for me. / Be'fore I could 'start 'scolding him, / he 'raised his 'hat po'litely, / and pro'ducing a 'neat 'metal 'plate / 'bearing, / in 'large' capital 'letters, / the 'words 'NO 'PARKING, / 'asked if I would 'like to 'buy one.

[54 seconds]

## PASSAGE V

'During the 'morning / they 'came a'gain to the 'spot / from 'which they had 'gone 'home / the 'night be'fore. / Yet it 'seemed no 'longer / the 'same 'place at 'all. / The 'sky was a 'deep 'blue, / and 'little 'white 'clouds / were 'driving 'fast a'cross it / in the 'fresh 'morning 'wind. / The 'round 'lake / in the 'centre of the 'valley / and the in'numerable 'pools / of 'bog 'water / no 'longer looked 'black and 'sinister, / but 'blue like the 'sky, / with 'silvery re'flections of the 'sun / 'dancing 'merrily 'over their 'surface. / The 'waterfall, / whose 'distant 'roaring / had 'seemed so 'strange 'last 'night, / was 'now 'visible / as a 'sparkling 'silver 'ribbon / at the 'edge / of one of the 'huge 'rocks 'opposite. / And 'even as they 'stood / 'gazing at 'all 'this in sur'prise, / a 'couple of 'wild 'geese / came 'flying a'cross the 'valley / and 'glided 'down on to the 'lake.

[52 seconds.]

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

Tuesday 14th June 1966

Afternoon 2½ hours

ENGLISH COMPOSITION AND LANGUAGE

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects. You should make the beginning and ending like those of an ordinary letter, but the address is not to be counted in the total number of words.

1. You have received an invitation to the wedding of an old friend. In your reply, give the reasons why you are unable to go; then make two or more suggestions of possible presents from you and ask the friend to choose.
2. A friend has heard that you have had an accident and has written to ask you about it. Write a letter of thanks in reply and tell your friend how the accident happened.
3. You have recently bought a radio set, which is not giving satisfactory reception. Write a letter to the manager of the shop from which you bought the set, telling him what is wrong and asking for advice.

[TURN OVER

## B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. The attractions that your country has to offer to tourists.
5. "How shall I ever be able to escape? This was the thought that kept passing through my mind." Tell the story of what you had to escape from and how you managed to do it.
6. The advantages and disadvantages of free trade or of protection to industry in your country. (You may limit your composition to one industry or refer to several.)

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

Each summer, the Ross family spent several weeks in a remote corner of Cornwall. They stayed in a farmhouse high on a cliff looking out to sea, built like a fortress to withstand the Atlantic gales. They spent most of their time in a tiny sheltered cove or bay, protected from the treacherous seas by a jutting headland. 5 Even in fair weather, to bring a boat into the cove required skill and in rough seas it was a very difficult operation, as the entrance to it appeared from the sea as the merest crack in the rocky coastline. Everything about the place was enchanting, from the yarns of the old retired fishermen to the tunnel through 10 the cliff. This had been cut by local farmers in the nineteenth century for the unromantic purpose of carrying sea-weed from the beach to use on their fields as fertiliser, but casual visitors always assumed that it was a natural cave and visualised its being used by smugglers and pirates to carry their ill-gotten 15 gains from the sea to some secret hiding-place among the rocks.

One year, the youngest boy brought one of his school-friends to stay with the family. This little boy, Peter, was fascinated by the atmosphere of the place—the rocks, the steep, rough paths, the boats and fishing and the strange incomprehensible 20 accents of the local people. He spent many hours listening to Charlie, the oldest inhabitant, telling tales of his feats at sea when he was a strong young fisherman and of the mermaids and pirates he had met on his voyages round the world.

One day, Peter woke early, before the rest of the household 25 was up. He dressed quickly and ran down to the cove. It was a beautiful morning, fine and clear, and he climbed to his

favourite spot on the cliff, threw himself flat on his stomach and peered over the edge down into the cove. To his great amazement, he saw a strange boat at the edge of the sea and, emerging 30 from it, two sinister figures, clad entirely in black, carrying between them a large basket, covered with a canvas sheet. Peter watched wide-eyed as, to his horror and delight, they disappeared into the tunnel. He crept stealthily down the cliff path and followed at a safe distance, his heart beating hard with 35 excitement and a little fear. The men put down the basket on a rock. One of them bent down and began to pull at something at his feet. This must surely be a hiding place for priceless treasure . . .

In his excitement, Peter dislodged a stone which rattled down 40 on to the rocks near the men. They looked round and to Peter's relief, not unmixed with disappointment, he recognised two young men he had seen before. They laughed at his romantic interpretation of their behaviour and explained that they had 45 been diving for lobsters, wearing rubber suits, and were now putting their catch into the sea-water well in which the local fishermen used to keep their shell-fish fresh until it was time to take them to market.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use **one** complete sentence for each answer.

- (a) Why was it necessary for the farmhouse to be strongly built?
- (b) Why was it difficult to bring a boat into the cove?
- (c) Why did visitors find the tunnel more romantic than it really was?

(ii) Choose **five** of the following words and phrases and give for each another word or phrase of similar meaning which could replace it in the passage: remote (l. 1); jutting (l. 5); unromantic (l. 12); casual visitors (l. 13); visualised (l. 14); fascinated (l. 18); incomprehensible accents (ll. 20-21); the local people (l. 21).

(iii) Write an account in your own words of Peter's adventure from when he first saw the boat to the time when the catch was put in the well. Write **not more than 80 words** and do not include anything that is not included in lines 29 to 48.

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

Tuesday 14th June 1966

Afternoon 2½ hours

ENGLISH COMPOSITION AND LANGUAGE

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[TURN OVER

## B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. The attractions that your country has to offer to tourists.
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6. The advantages and disadvantages of free trade **or** of protection to industry in your country. (You may limit your composition to one industry or refer to several.)

## C.

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(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use **one** complete sentence for each answer.

- (a) Why was it necessary for the farmhouse to be strongly built?
- (b) Why was it difficult to bring a boat into the cove?
- (c) Why did visitors find the tunnel more romantic than it really was?

(ii) Choose **five** of the following words and phrases and give for each another word or phrase of similar meaning which could replace it in the passage: remote (l. 1); jutting (l. 5); unromantic (l. 12); casual visitors (l. 13); visualised (l. 14); fascinated (l. 18); incomprehensible accents (ll. 20–21); the local people (l. 21).

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UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

Tuesday 14th June 1966

Morning 2½ hours

PRESCRIBED BOOKS

*Candidates must answer four questions in all*

JOSEPHINE KAMM: *The Story of Mrs. Pankhurst*

1. How did the Pethick-Lawrences help the women's suffrage movement?
2. Give an account of Dr. and Mrs. Pankhurst's life in London.
3. Explain why the members of the W.S.P.U. decided to use violent methods. Describe the violent incidents which led to the first imprisonment of Christabel and Annie.

MARRYAT: *The Children of the New Forest*

4. Describe some of the methods used by Humphrey to capture wild animals in the forest.
5. Who was Patience and what part does she play in events in the story?
6. Explain why the town of Lymington was of such importance in the story and describe any special occasion when Edward visited it.

ERNEST HEMINGWAY: *The Old Man and the Sea*

7. What did the Old Man do and think about while his boat was being pulled along by the great fish?
8. Describe the Old Man's battle with the sharks.
9. Give an account of the talk between the Boy and the Old Man at the beginning of the story.

[TURN OVER

GERALD DURRELL: *Three Singles to Adventure*

10. Give an account of the author's arrival in Adventure and the creatures he collected as a result of his conference there with the local hunters.

11. Describe Mr. Kahn and write about the part he plays in helping the expedition.

12. Tell the story of the capture of the giant ant-eater by Francis the Amerindian and describe the problem that arose once it was caught and how this was settled.

TERENCE RATTIGAN: *The Winslow Boy*

13. Describe some incidents in the story which show that Grace sometimes disagreed with her husband Arthur about how to deal with the problems they had to face.

14. Apart from her family, two of the men prominent in Catherine Winslow's life were Desmond and John. In what ways, and for what reasons, do her opinions about them change as the story develops?

15. Write an account of Sir Robert's interview with Ronnie, and explain why, at the end of the interview, Sir Robert said: "The boy is plainly innocent. I accept the brief."

WILLIAM GOLDING: *Lord of the Flies*

16. How did the dead airman come to rest on the island, and then finally leave it; and how did his presence on the island affect the children?

17. Illustrate from incidents in the story the differences between Piggy and the other boys.

18. Which of the boys died on the island, and how did their deaths occur?

GEORGE ORWELL: *Animal Farm*

19. Describe the Battle of the Cowshed as it actually happened, and then explain why, in the years following, quite a different story of the battle was told.

20. Choose **three** of the following, and write what you know about them:

- (a) Song and poetry in *Animal Farm*;
- (b) The life of the pigs under Napoleon's rule;
- (c) Mollie;
- (d) The importance of Snowball in the story after he fled from the Farm.

21. Describe the character of Boxer, and tell the story of his life and death.

Lower Certificate

ENGLISH  
COMP. AND  
LANG.

*Tuesday*  
**16 DEC. 1952**  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

Three questions are to be answered: **one** from A, **one** from B, and **all four parts** of Question 7 in C.

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. A reply to an English correspondent who has asked for information about one of your national festivals.
2. An account of a visit to a place in your own or in a foreign country which you have not seen for some time.
3. A request to a brokerage firm to arrange for air (or sea) transport for some goods to come from England to your own country.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The man or woman you admire most.
5. An account of what you found and what you did when you reached home and saw that during your absence thieves had entered the house.
6. The part played by banks in the commercial and industrial activities of a country.

## C.

7. Read carefully the following passage and answer the questions (i), (ii), (iii) and (iv).

After sunset on our last day at the farm I walked out into the desert. In this, the first pleasant moment for a walk after long hot hours, I thought I was the only thing out of doors. Abruptly I stopped short. Before me a rattlesnake lay rigid, its head not yet drawn back to strike, but merely turned a little to watch what I would do. Many snakes will flee at the sight of a man but this rattlesnake felt no necessity to get out of anybody's way. He held his ground in calm watchfulness waiting for me to show my intentions. My first instinct was to ignore him; I had never killed an animal I was not obliged to kill. But I remembered that there were children, dogs and horses at the farm as well as men and women lightly shod; my duty, plainly, was to kill the snake. I went back to the farm and returned with a stick. The rattlesnake had not moved; he lay like a live wire but when he saw the stick his tail twitched and he drew back his head. I raised my weapon but more quickly than I could strike he shot into a dense bush and set up his rattling, warning me by this that I had made an unprovoked attack and attempted to take his life and that if I persisted he would have no choice but to take mine if he could. For a moment I listened to this ominous sound and then I struck into the bush with my stick and, hacking about, dragged him out of it with his back broken. He struck passionately once more at the stick but a moment later his neck was broken and he was soon dead although when I picked him up by the tail his jaws gaped and snapped once more proving that a dead snake may still bite. There was blood in his mouth and poison was dripping from his fangs; it was a nasty sight, but a pitiful one. I dropped the body into the green bush and, as I did so, I saw him in imagination, gliding over the twilit sands as he might have done had I let him go.

30

(i) Choose **five** of the following words and give for each of them another word or phrase of similar meaning to that in which the word is used in the passage: abruptly (l. 4); rigid (l. 4); ignore (l. 9); plainly (l. 12); dense (l. 17); persisted (l. 19); ominous (l. 21); passionately (l. 23); gaped (l. 25).

(ii) Explain briefly what you understand by each of the following phrases as they are used in the passage: stopped short (l. 4); to show my intentions (l. 9); lightly shod (l. 12); unprovoked attack (l. 18).

(iii) Give short answers to the following questions, in your own words as far as possible, but using only material contained in the passage. Use **one** complete sentence for each answer.

(a) Why did the writer decide that he must kill the rattlesnake?

(b) What happened when he raised his stick to strike at the snake?

(c) What did the rattling sound tell the writer?

(d) How did he learn that a dead snake could still bite?

(iv) Suppose you watched the events described in this passage. Describe in **not more** than 80 words what you saw from the time the man saw the snake to the moment when he killed it.

## Lower Certificate

ENGLISH  
COMP. AND LANG.

Tuesday

15 DEC 1953

Afternoon

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

Three questions are to be answered: **one** from A, **one** from B, and **all three** parts of Question 7 in C.

Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. A request to a relative or friend, or an application to an official body, for financial help to visit England to study. State briefly your aims in studying the language and what you hope to do after your period of study.
2. Describe to a friend how you spent a quiet evening at home.
3. A complaint to a business firm about some goods which have just reached you. Some are missing, others are in a broken or damaged condition.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. What you would like a foreign visitor to see in your own country.
5. An evening at the theatre or some place of amusement.
6. The part played by transport in trade and industry.

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

As the two boys, Bevis and Mark, ran down the bank of the river towards the water's edge they could see that something unusual was going on. Crowds upon crowds of fish were swimming to and fro, and the water seemed thick with them. Further along, fish were jammed together, impeding each other 5 where the river grew narrower.

It was a rough descent, over large stones, but as soon as the boys reached the water's edge they could hear loud splashings in the water in several places. Something was striving to escape, alarmed at their approach. Mark fell on his knees, put 10 his hand into a little pool formed by a few stones lying half in and half out of the water, and feeling about, drew out two fish, one of which slipped through his fingers; the other he held firmly. Bevis rushed towards the place where another splashing was heard but he was not quick enough, for he slipped and fell while 15 scrambling over the slippery stones, and the fish swam away before he reached the water. When the boys had looked at the fish which Mark had caught they put it back in the river, where it dived and swam away. As they watched it they could hear splashings further up the river where fish, seized with panic at 20 the thought of enemies which might attack them, were struggling to get away. A few minutes later Mark and Bevis climbed the river bank and went on their way.

(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: to and fro (l. 4); jammed together (l. 5); impeding (l. 5); descent (l. 7); striving to escape (ll. 9-10); alarmed (l. 10).

(ii) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) What was the "unusual" sight which the boys saw as they ran towards the river?

(b) Why was it difficult to reach the water's edge?

(c) Why was Mark more successful than Bevis in catching a fish?

(d) Why were the fish struggling to get away?

(iii) Suppose you had been watching these happenings. Describe in not more than 80 words what you saw from the time the boys began to run down the river bank to the time the boys went on their way again. Use your own words as far as possible.

**Lower Certificate**ENGLISH  
COMP. AND LANG.*Tuesday***22 JUNE 1954***Afternoon**2½ hours*

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. You have quarrelled with a friend. Write a friendly letter and invite him or her to go to an entertainment with you.
2. An account to your parents of a small adventure which you had while on holiday.
3. A request to a bank, at which you are not a customer, to transfer money for you to a foreign country to pay a debt you owe there.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. A description of your favourite hobby or pastime.
5. Write a story, or an account of an adventure, beginning: "It was just getting light when I woke up. . . ."
6. The import and export trade of your country.

**[TURN OVER**

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

As I lay on the flat roof of the prison looking down at the place below the prison wall on to which I wanted to jump, I could see that it was in full view of the sentry who was about fifty yards away and I knew that he could play a light at will on any desired spot. I dropped quietly and quickly on to the 5 ground at the moment the noise of the sentry's footsteps told me that he was moving away from me. Once on the ground I was hidden from view, and I continued along the wall, hiding in its shadow, and moving as quietly as I could in the stockings which I wore over my shoes. I had just succeeded in reaching 10 the end of the first length of wall when a commotion broke out among the guards who were running hither and thither with torches flashing and the shouting of orders. I lay like a dead thing close up to the wall. The commotion increased, but nobody came near the place where I lay. After what seemed to me a 15 long time, the sound of voices died away in the distance. I turned at right angles, half walking and half crawling, but with a lighter heart. As I moved, loose stones seemed to rattle beneath my feet, and once a dry branch of a tree which had fallen to the ground seemed to snap like a pistol shot as I stepped 20 on it. Once I bumped into a wooden plank which was propped up against the wall, and I waited as if frozen with horror for it to fall with a crash. Fortunately, although it slipped it did not fall.

At last I reached the end of the wall, and could begin to 25 move faster across the open country in which the prison stood. I was free!

(i) Give short answers to the following questions, in your own words as far as possible, by using only material contained in the passage. Use one complete sentence for each answer.

(a) Why was the man afraid he might be seen by the sentry when he jumped from the flat roof?

(b) How could he tell that the sentry was moving away from him?

(c) What did he do during the time he heard the guards running and shouting?

(d) What were the noises which he thought would tell the sentries that he was moving along the wall?

(ii) Choose **four** of the following words or phrases and give for each a word or phrase of similar meaning to that in which the word or phrase is used in the passage: in full view (l. 3); at will (l. 4); any desired spot (l. 5); commotion (l. 11); a lighter heart (l. 18); propped up (ll. 21, 22); frozen with horror (l. 22).

(iii) Describe in not more than 80 words what happened to the man from the time he jumped from the roof to the time he started moving again after the commotion had ceased (l. 16). Do not include anything which is not in the passage. Use your own words as far as possible.



**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**22 JUNE 1954**  
*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. You have quarrelled with a friend. Write a friendly letter and invite him or her to go to an entertainment with you.
2. An account to your parents of a small adventure which you had while on holiday.
3. A request to a bank, at which you are not a customer, to transfer money for you to a foreign country to pay a debt you owe there.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. A description of your favourite hobby or pastime.
5. Write a story, or an account of an adventure, beginning: "It was just getting light when I woke up. . . ."
6. The import and export trade of your country.

[TURN OVER

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

As I lay on the flat roof of the prison looking down at the place below the prison wall on to which I wanted to jump, I could see that it was in full view of the sentry who was about fifty yards away and I knew that he could play a light at will on any desired spot. I dropped quietly and quickly on to the 5 ground at the moment the noise of the sentry's footsteps told me that he was moving away from me. Once on the ground I was hidden from view, and I continued along the wall, hiding in its shadow, and moving as quietly as I could in the stockings which I wore over my shoes. I had just succeeded in reaching 10 the end of the first length of wall when a commotion broke out among the guards who were running hither and thither with torches flashing and the shouting of orders. I lay like a dead thing close up to the wall. The commotion increased, but nobody came near the place where I lay. After what seemed to me a 15 long time, the sound of voices died away in the distance. I turned at right angles, half walking and half crawling, but with a lighter heart. As I moved, loose stones seemed to rattle beneath my feet, and once a dry branch of a tree which had fallen to the ground seemed to snap like a pistol shot as I stepped 20 on it. Once I bumped into a wooden plank which was propped up against the wall, and I waited as if frozen with horror for it to fall with a crash. Fortunately, although it slipped it did not fall.

At last I reached the end of the wall, and could begin to 25 move faster across the open country in which the prison stood. I was free!

(i) Give short answers to the following questions, in your own words as far as possible, by using only material contained in the passage. Use one complete sentence for each answer.

(a) Why was the man afraid he might be seen by the sentry when he jumped from the flat roof?

(b) How could he tell that the sentry was moving away from him?

(c) What did he do during the time he heard the guards running and shouting?

(d) What were the noises which he thought would tell the sentries that he was moving along the wall?

(ii) Choose **four** of the following words or phrases and give for each a word or phrase of similar meaning to that in which the word or phrase is used in the passage: in full view (l. 3); at will (l. 4); any desired spot (l. 5); commotion (l. 11); a lighter heart (l. 18); propped up (ll. 21, 22); frozen with horror (l. 22).

(iii) Describe in not more than 80 words what happened to the man from the time he jumped from the roof to the time he started moving again after the commotion had ceased (l. 16). Do not include anything which is not in the passage. Use your own words as far as possible.

## Lower Certificate

ENGLISH  
COMP. AND LANG.Tuesday  
22 JUNE 1954  
Afternoon  
2½ hoursUNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

Three questions are to be answered: **one** from A, **one** from B, and **all three** parts of Question 7 in C.

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. You have quarrelled with a friend. Write a friendly letter and invite him or her to go to an entertainment with you.
2. An account to your parents of a small adventure which you had while on holiday.
3. A request to a bank, at which you are not a customer, to transfer money for you to a foreign country to pay a debt you owe there.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. A description of your favourite hobby or pastime.
5. Write a story, or an account of an adventure, beginning: "It was just getting light when I woke up. . . ."
6. The import and export trade of your country.

[TURN OVER

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

As I lay on the flat roof of the prison looking down at the place below the prison wall on to which I wanted to jump, I could see that it was in full view of the sentry who was about fifty yards away and I knew that he could play a light at will on any desired spot. I dropped quietly and quickly on to the 5 ground at the moment the noise of the sentry's footsteps told me that he was moving away from me. Once on the ground I was hidden from view, and I continued along the wall, hiding in its shadow, and moving as quietly as I could in the stockings which I wore over my shoes. I had just succeeded in reaching 10 the end of the first length of wall when a commotion broke out among the guards who were running hither and thither with torches flashing and the shouting of orders. I lay like a dead thing close up to the wall. The commotion increased, but nobody came near the place where I lay. After what seemed to me a 15 long time, the sound of voices died away in the distance. I turned at right angles, half walking and half crawling, but with a lighter heart. As I moved, loose stones seemed to rattle beneath my feet, and once a dry branch of a tree which had fallen to the ground seemed to snap like a pistol shot as I stepped 20 on it. Once I bumped into a wooden plank which was propped up against the wall, and I waited as if frozen with horror for it to fall with a crash. Fortunately, although it slipped it did not fall.

At last I reached the end of the wall, and could begin to 25 move faster across the open country in which the prison stood. I was free!

(i) Give short answers to the following questions, in your own words as far as possible, by using only material contained in the passage. Use one complete sentence for each answer.

(a) Why was the man afraid he might be seen by the sentry when he jumped from the flat roof?

(b) How could he tell that the sentry was moving away from him?

(c) What did he do during the time he heard the guards running and shouting?

(d) What were the noises which he thought would tell the sentries that he was moving along the wall?

(ii) Choose **four** of the following words or phrases and give for each a word or phrase of similar meaning to that in which the word or phrase is used in the passage: in full view (l. 3); at will (l. 4); any desired spot (l. 5); commotion (l. 11); a lighter heart (l. 18); propped up (ll. 21, 22); frozen with horror (l. 22).

(iii) Describe in not more than 80 words what happened to the man from the time he jumped from the roof to the time he started moving again after the commotion had ceased (l. 16). Do not include anything which is not in the passage. Use your own words as far as possible.

Lower Certificate

ENGLISH  
COMP. AND LANG.  
Tuesday  
14 DEC. 1954  
Afternoon  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

Three questions are to be answered: **one** from A, **one** from B, and **all three** parts of Question 7 in C.

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. You have received an invitation to travel with a rich friend to a foreign country. He is paying all expenses. Write thanking him for the invitation and accepting it.
2. A description for an English reader of the room in which you usually work.
3. Write, asking for more information, in reply to the following advertisement: "3 per cent. on shares, tax paid; productive investment."

B.

Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

4. A story or description introducing the following four objects: clock, knife, shirt, piano.

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برتوون	برتوون	مذا
۹	۸,۱۰	۹
۹	۱۵	۹
۹	۸	۹
۹	۱۰	۱۰
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۹	۹	۸
۱۰	۹,۱۰	۱۰
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۷۴	۱۹	۱۷,۱۰
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۶/۷	۳۱۷
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۲۸	۲۸

5. How life in your country has been improved by modern inventions.

6. The advantages and disadvantages of large-scale and small-scale business enterprises.

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

Henry took his rifle and strolled off alone into the forest, intending to shoot a few birds for the cooking-pot. The jungle was very dense in this part of the country, so dense indeed that a man was unable to see more than a dozen yards in any direction. The pigeons, however, were plentiful, and as they fluttered from 5 tree to tree Henry walked after them, without realising in the least how far he was straying from his starting-point. At last the fast-failing light reminded him that he ought to be returning to the camp. He had stopped to pick up the last pigeon and was in the very act of straightening himself when a slight crackling noise 10 among the bushes came to his ears.

He remained very still, holding his breath and listening intently. It flashed through his mind that the sound might have been made by one of his friends who perhaps had come from the camp in search of him, and he waited eagerly for the snapping 15 noise to be repeated, hoping that he would be able to learn if it was made by man or beast.

As he stood thus for an instant with bowed shoulders, the noise came again, louder and much nearer than before, and at the same moment, before he had time to stand upright again or 20 to realise the danger that threatened him, something hit him heavily in the back, knocking him flat on the ground. He was not hurt, but the breath was knocked out of him, and something which he could not see had jumped upon his back, pinning him to the ground. Henry twisted his head round, trying to see what 25 had attacked him. He could just manage to see a fierce face peeping over his shoulder and only an inch or two above it.

(i) Give short answers to the following questions, in your own words as far as possible, by using only material contained in the passage. Use one complete sentence for each answer.

(a) Why did Henry stray so far from the camp?

(b) What made him realise that it was time for him to return?

(c) Who did he at first think had made the crackling noise in the bushes?

(d) What happened to Henry when he was hit in the back?

(ii) Choose **four** of the following words or phrases and give for each a word or phrase of similar meaning to that in which the word or phrase is used in the passage:—

strolled (1. 1); realising (1. 6); starting-point (1. 7); fast-failing (1. 8); intently (1. 13); repeated (1. 16); with bowed shoulders (1. 18).

(iii) Describe in not more than 80 words what happened to Henry from the time he decided that he ought to be returning to camp (1. 9) to the end of the passage. Use your own words as far as possible. Do not include anything which is not in the passage.

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**21 JUNE 1955**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. Give advice to a friend, who is going for the first time to a colder (or warmer) country, on what clothes and other articles to pack.
2. You have just arrived in a foreign country, or at a place in your own country some distance from your home. Write to your family announcing your arrival and giving a few first impressions of the place you are visiting.
3. An enquiry about the price, cost of transport and insurance and the date of delivery, of some goods you wish to order from a firm some distance from your home or from where you are living.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The man or woman in history or literature you admire most.
5. How you spent the last public holiday in your country.
6. The functions of a state bank.

[TURN OVER

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

Some years ago, after a wearisome journey through uninteresting country, I camped in an out-of-the-way place where an old disused house standing in the forest offered the only shelter to be had. The house itself was uninhabitable. There were holes in the roof which let in the almost daily rain of the wet 5 season, but in a dry corner of the wide verandah, above which the sagging thatch was still supported by rough poles, I placed my bed under a canvas sheet which I slung overhead to keep off the rain. It was an uncomfortable place, but the best I could find. I then prepared for bed. I tapped the burnt-out tobacco 10 from my pipe, kicked off my shoes, slipped into the blankets and lay down. Down by my feet something moved!

My first movement was to draw up my feet, humping my knees beneath the blankets. This I did without any thought of what lay at the foot of the bed. Rat, lizard, scorpion—it might be 15 any of these; but before I could sit up and jump clear of the blankets, I felt over my instep and between my ankles a long, dry slithering feeling. Now I knew what it was. I kept perfectly still. After the slow wriggle between my feet all movement ceased, but down there, in the arch made by my drawn-up knees, 20 I knew a snake was crawling or else waiting for some movement of mine.

(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: wearisome (l. 1); out-of-the-way (l. 2); disused (l. 3); uninhabitable (l. 4); sagging thatch (l. 7); supported (l. 7).

(ii) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) How did the writer prevent the rain from dripping on to his bed?

(b) What were the writer's final preparations before lying down?

(c) What was his first action after he had felt something crawling near his feet?

(d) What did he intend to do next, but was prevented from doing by the "slithering feeling"?

(iii) Suppose you were the person referred to in the passage. Describe in not more than 80 words what happened from the time you slipped into bed to the time you knew that there was a snake waiting for you to move. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.



**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**21 JUNE 1955**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. Give advice to a friend, who is going for the first time to a colder (or warmer) country, on what clothes and other articles to pack.
2. You have just arrived in a foreign country, or at a place in your own country some distance from your home. Write to your family announcing your arrival and giving a few first impressions of the place you are visiting.
3. An enquiry about the price, cost of transport and insurance and the date of delivery, of some goods you wish to order from a firm some distance from your home or from where you are living.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The man or woman in history or literature you admire most.
5. How you spent the last public holiday in your country.
6. The functions of a state bank.

[TURN OVER

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

Some years ago, after a wearisome journey through uninteresting country, I camped in an out-of-the-way place where an old disused house standing in the forest offered the only shelter to be had. The house itself was uninhabitable. There were holes in the roof which let in the almost daily rain of the wet season, but in a dry corner of the wide verandah, above which the sagging thatch was still supported by rough poles, I placed my bed under a canvas sheet which I slung overhead to keep off the rain. It was an uncomfortable place, but the best I could find. I then prepared for bed. I tapped the burnt-out tobacco from my pipe, kicked off my shoes, slipped into the blankets and lay down. Down by my feet something moved!

My first movement was to draw up my feet, humping my knees beneath the blankets. This I did without any thought of what lay at the foot of the bed. Rat, lizard, scorpion—it might be any of these; but before I could sit up and jump clear of the blankets, I felt over my instep and between my ankles a long, dry slithering feeling. Now I knew what it was. I kept perfectly still. After the slow wriggle between my feet all movement ceased, but down there, in the arch made by my drawn-up knees, I knew a snake was crawling or else waiting for some movement of mine.

(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: wearisome (l. 1); out-of-the-way (l. 2); disused (l. 3); uninhabitable (l. 4); sagging thatch (l. 7); supported (l. 7).

(ii) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) How did the writer prevent the rain from dripping on to his bed?

(b) What were the writer's final preparations before lying down?

(c) What was his first action after he had felt something crawling near his feet?

(d) What did he intend to do next, but was prevented from doing by the "slithering feeling"?

(iii) Suppose you were the person referred to in the passage. Describe in not more than 80 words what happened from the time you slipped into bed to the time you knew that there was a snake waiting for you to move. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.

N<sup>o</sup> 06478

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**21 JUNE 1955**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. Give advice to a friend, who is going for the first time to a colder (or warmer) country, on what clothes and other articles to pack.
2. You have just arrived in a foreign country, or at a place in your own country some distance from your home. Write to your family announcing your arrival and giving a few first impressions of the place you are visiting.
3. An enquiry about the price, cost of transport and insurance and the date of delivery, of some goods you wish to order from a firm some distance from your home or from where you are living.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The man or woman in history or literature you admire most.
5. How you spent the last public holiday in your country.
6. The functions of a state bank.

[TURN OVER

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

Some years ago, after a wearisome journey through uninteresting country, I camped in an out-of-the-way place where an old disused house standing in the forest offered the only shelter to be had. The house itself was uninhabitable. There were holes in the roof which let in the almost daily rain of the wet 5 season, but in a dry corner of the wide verandah, above which the sagging thatch was still supported by rough poles, I placed my bed under a canvas sheet which I slung overhead to keep off the rain. It was an uncomfortable place, but the best I could find. I then prepared for bed. I tapped the burnt-out tobacco 10 from my pipe, kicked off my shoes, slipped into the blankets and lay down. Down by my feet something moved!

My first movement was to draw up my feet, humping my knees beneath the blankets. This I did without any thought of what lay at the foot of the bed. Rat, lizard, scorpion—it might be 15 any of these; but before I could sit up and jump clear of the blankets, I felt over my instep and between my ankles a long, dry slithering feeling. Now I knew what it was. I kept perfectly still. After the slow wriggle between my feet all movement ceased, but down there, in the arch made by my drawn-up knees, 20 I knew a snake was crawling or else waiting for some movement of mine.

(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: wearisome (l. 1); out-of-the-way (l. 2); disused (l. 3); uninhabitable (l. 4); sagging thatch (l. 7); supported (l. 7).

(ii) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) How did the writer prevent the rain from dripping on to his bed?

(b) What were the writer's final preparations before lying down?

(c) What was his first action after he had felt something crawling near his feet?

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(iii) Suppose you were the person referred to in the passage. Describe in not more than 80 words what happened from the time you slipped into bed to the time you knew that there was a snake waiting for you to move. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.

N<sup>o</sup> 06477

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**21 JUNE 1955**  
*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. Give advice to a friend, who is going for the first time to a colder (or warmer) country, on what clothes and other articles to pack.
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B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The man or woman in history or literature you admire most.
5. How you spent the last public holiday in your country.
6. The functions of a state bank.

[TURN OVER

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

Some years ago, after a wearisome journey through uninteresting country, I camped in an out-of-the-way place where an old disused house standing in the forest offered the only shelter to be had. The house itself was uninhabitable. There were holes in the roof which let in the almost daily rain of the wet 5 season, but in a dry corner of the wide verandah, above which the sagging thatch was still supported by rough poles, I placed my bed under a canvas sheet which I slung overhead to keep off the rain. It was an uncomfortable place, but the best I could find. I then prepared for bed. I tapped the burnt-out tobacco 10 from my pipe, kicked off my shoes, slipped into the blankets and lay down. Down by my feet something moved!

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(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: wearisome (l. 1); out-of-the-way (l. 2); disused (l. 3); uninhabitable (l. 4); sagging thatch (l. 7); supported (l. 7).

(ii) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) How did the writer prevent the rain from dripping on to his bed?

(b) What were the writer's final preparations before lying down?

(c) What was his first action after he had felt something crawling near his feet?

(d) What did he intend to do next, but was prevented from doing by the "slithering feeling"?

(iii) Suppose you were the person referred to in the passage. Describe in not more than 80 words what happened from the time you slipped into bed to the time you knew that there was a snake waiting for you to move. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.

Lower Certificate

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**13 DEC. 1955**  
*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

Three questions are to be answered: **one** from A, **one** from B, and **all three** parts of Question 7 in C.

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. An invitation to an English friend to spend two or three weeks with you at your home. Outline briefly what he or she can do during that time.
2. Ask a friend for information about another friend whom you have not seen for some time and whose address you have lost. Suggest a meeting of all three to take place in the coming summer.
3. A brief report to an insurance company about an accident in which you were involved. Do not give a list of the items of damage suffered.

B.

Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

4. My house (or flat, or room), and how I should like it to be.
5. "I had never had a more pleasant experience." Relate this experience.
6. A day's work at the office.

**[TURN OVER**

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

My friend Jacob and I were standing on the brink of a narrow stream the banks of which rose at a sharp angle from the water's edge. Leaning forward to look over Jacob's shoulder I saw that the bank facing us half a dozen yards away had a curiously coloured patch upon its surface; I saw also that all over the patch there was a strange kind of movement. I had not realised what I was looking at when, without any warning, the patch flew up at us. A humming sound accompanied the flight and a second later the patch was upon us—a furious swarm of angry bees.

Jacob, hiding his head in his arms, turned and rushed away, nearly knocking me over as he did so. I followed him headlong running as though for my life. For a moment I thought I had given the enemy the slip and I turned to watch Jacob, whom I had passed as I ran, beating the air savagely with whirling arms whilst at the same time he was screaming loudly. But the next moment I was once more put to flight. I pulled my large felt hat from my head and struck out against the swarm of bees with might and main. Still they came on, settling upon my flannel shirt, my coarse jungle trousers, stinging my bare arms and hands mercilessly and attacking my face and neck. Panting for breath, I was beginning to feel very tired and frightened when suddenly I caught sight of a deep pool in a clearing in the jungle. I shouted to Jacob, "Take to the water" and, only waiting an instant to slip off my revolver belt—a delay for which I had to pay a heavy price in stings—I plunged head first into the water. Jacob followed me and together we struck out across the pond, swimming under the surface of the water for as long as possible. When we reached the far side of the pond, we saw that the bees had turned away in a different direction.

(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: at a sharp angle (l. 2); followed him headlong (l. 11); given the enemy the slip (l. 13); savagely (l. 14); once more put to flight (l. 16); with might and main (ll. 17, 18); coarse (l. 19); pay a heavy price (l. 25).

(ii) Give **short** answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) In what way was the patch which Jacob and his friend saw different from the rest of the bank?

(b) How did Jacob and the writer try to defend themselves against the bees?

(c) Why did the writer suffer many more stings just before he plunged into the water?

(d) How did the writer and Jacob escape finally from the bees?

(iii) Describe in **not more than 80 words** what Jacob did and saw from the time he began to run away from the bees to the time he plunged into the water. Do not include anything which is not in the passage. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.



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ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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B.

Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

4. My house (or flat, or room), and how I should like it to be.
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7. Read carefully the following passage and answer questions (i), (ii) and (iii).

My friend Jacob and I were standing on the brink of a narrow stream the banks of which rose at a sharp angle from the water's edge. Leaning forward to look over Jacob's shoulder I saw that the bank facing us half a dozen yards away had a curiously coloured patch upon its surface; I saw also that all over the patch there was a strange kind of movement. I had not realised what I was looking at when, without any warning, the patch flew up at us. A humming sound accompanied the flight and a second later the patch was upon us—a furious swarm of angry bees.

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(ii) Give **short** answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) In what way was the patch which Jacob and his friend saw different from the rest of the bank?

(b) How did Jacob and the writer try to defend themselves against the bees?

(c) Why did the writer suffer many more stings just before he plunged into the water?

(d) How did the writer and Jacob escape finally from the bees?

(iii) Describe in **not more than 80 words** what Jacob did and saw from the time he began to run away from the bees to the time he plunged into the water. Do not include anything which is not in the passage. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.

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## Lower Certificate in English

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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B.

Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

4. My house (or flat, or room), and how I should like it to be.
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6. A day's work at the office.

[TURN OVER

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

My friend Jacob and I were standing on the brink of a narrow stream the banks of which rose at a sharp angle from the water's edge. Leaning forward to look over Jacob's shoulder I saw that the bank facing us half a dozen yards away had a curiously coloured patch upon its surface; I saw also that all over the patch there was a strange kind of movement. I had not realised what I was looking at when, without any warning, the patch flew up at us. A humming sound accompanied the flight and a second later the patch was upon us—a furious swarm of angry bees.

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ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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B.

Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

4. My house (or flat, or room), and how I should like it to be.

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6. A day's work at the office.

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7. Read carefully the following passage and answer questions (i), (ii) and (iii).

My friend Jacob and I were standing on the brink of a narrow stream the banks of which rose at a sharp angle from the water's edge. Leaning forward to look over Jacob's shoulder I saw that the bank facing us half a dozen yards away had a curiously coloured patch upon its surface; I saw also that all over the patch there was a strange kind of movement. I had not realised what I was looking at when, without any warning, the patch flew up at us. A humming sound accompanied the flight and a second later the patch was upon us—a furious swarm of angry bees.

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(iii) Describe in **not more than 80 words** what Jacob did and saw from the time he began to run away from the bees to the time he plunged into the water. Do not include anything which is not in the passage. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.

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ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

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(a) In what way was the patch which Jacob and his friend saw different from the rest of the bank?

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(iii) Describe **in not more than 80 words** what Jacob did and saw from the time he began to run away from the bees to the time he plunged into the water. Do not include anything which is not in the passage. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.



## Lower Certificate

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ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

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ENGLISH COMPOSITION AND LANGUAGE

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## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

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LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. An invitation to an English friend to spend two or three weeks with you at your home. Outline briefly what he or she can do during that time.
2. Ask a friend for information about another friend whom you have not seen for some time and whose address you have lost. Suggest a meeting of all three to take place in the coming summer.
3. A brief report to an insurance company about an accident in which you were involved. Do not give a list of the items of damage suffered.

B.

Write a composition on **one** of the following subjects: the length should be between 250 and 350 words:

4. My house (or flat, or room), and how I should like it to be.
5. "I had never had a more pleasant experience." Relate this experience.
6. A day's work at the office.

**[TURN OVER**

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

My friend Jacob and I were standing on the brink of a narrow stream the banks of which rose at a sharp angle from the water's edge. Leaning forward to look over Jacob's shoulder I saw that the bank facing us half a dozen yards away had a curiously coloured patch upon its surface; I saw also that all over the patch 5 there was a strange kind of movement. I had not realised what I was looking at when, without any warning, the patch flew up at us. A humming sound accompanied the flight and a second later the patch was upon us—a furious swarm of angry bees.

Jacob, hiding his head in his arms, turned and rushed away, 10 nearly knocking me over as he did so. I followed him headlong running as though for my life. For a moment I thought I had given the enemy the slip and I turned to watch Jacob, whom I had passed as I ran, beating the air savagely with whirling arms whilst at the same time he was screaming loudly. But the next 15 moment I was once more put to flight. I pulled my large felt hat from my head and struck out against the swarm of bees with might and main. Still they came on, settling upon my flannel shirt, my coarse jungle trousers, stinging my bare arms and hands mercilessly and attacking my face and neck. Panting for breath, 20 I was beginning to feel very tired and frightened when suddenly I caught sight of a deep pool in a clearing in the jungle. I shouted to Jacob, "Take to the water" and, only waiting an instant to slip off my revolver belt—a delay for which I had to pay a heavy price in stings—I plunged head first into the water. 25 Jacob followed me and together we struck out across the pond, swimming under the surface of the water for as long as possible. When we reached the far side of the pond, we saw that the bees had turned away in a different direction.

(i) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: at a sharp angle (l. 2); followed him headlong (l. 11); given the enemy the slip (l. 13); savagely (l. 14); once more put to flight (l. 16); with might and main (ll. 17, 18); coarse (l. 19); pay a heavy price (l. 25).

(ii) Give **short** answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) In what way was the patch which Jacob and his friend saw different from the rest of the bank?

(b) How did Jacob and the writer try to defend themselves against the bees?

(c) Why did the writer suffer many more stings just before he plunged into the water?

(d) How did the writer and Jacob escape finally from the bees?

(iii) Describe **in not more than 80 words** what Jacob did and saw from the time he began to run away from the bees to the time he plunged into the water. Do not include anything which is not in the passage. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.

## Lower Certificate

ENGLISH  
COMP. AND LANG.*Tuesday*  
**13 DEC. 1955**  
*Afternoon*  
*2½ hours*UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

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*(Two hours and a half)*

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## B.

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(iii) Describe **in not more than 80 words** what Jacob did and saw from the time he began to run away from the bees to the time he plunged into the water. Do not include anything which is not in the passage. Use your own words as far as possible. Failure to keep within the limit of 80 words will entail loss of marks.



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Tuesday  
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**Lower Certificate**

ENGLISH  
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*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
*2½ hours*

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LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

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2. You have received two tickets for the theatre. Invite a friend to accompany you, arranging time and place of meeting, and suggesting how to spend the rest of the evening.

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B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The most important or most interesting experience you have had in the last five years.

[TURN OVER

No 07438

5. The ways in which English will be useful to you.

6. A report to your employers on sales in the district for which you are responsible. Conclude your report with suggestions for improving business.

C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

One morning I came suddenly on the fresh tracks of what seemed to be a huge elephant. There was very little breeze but what there was came from the direction in which the tracks led. I followed them as fast as I could and in about half an hour I heard him in front of me. At that I checked my pace and crept 5 on with extreme caution. It was lucky for me that I did for when I got round some thorn-trees and a big boulder that was sticking up out of the slope, I saw the most amazing elephant I had ever seen moving slowly across a patch of bare hillside about a hundred yards ahead of me. His tail end was towards me and 10 I could not see his tusks except for a flash of white now and then as he flapped his ears and moved his head from side to side.

I at once determined to get him on the slope and I managed to work round behind him without mishap. When he came into view again he was about eighty yards away and slightly below me. 15 But he had stopped and was obviously on the alert. His trunk was raised and moving about for a scent. I lay down and putting my rifle to my shoulder waited for my chance.

It never came. Several times I was about to shoot but always he moved just at the wrong moment. He was restless and 20 obviously worried about something and I began to wonder if he had scented me. And then all of a sudden I felt a little puff of breeze in my face. It came straight from the elephant to me. At the same moment a strange change came over the beast. He moved slowly and stealthily down the slope; a minute later I 25 heard the crashing of branches and the squeal of a thoroughly infuriated elephant.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) What did the writer do when, after following the tracks, he heard the elephant in front of him?

(b) Why did the writer see little of the elephant's tusks?

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

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B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The most important or most interesting experience you have had in the last five years.

[TURN OVER

5. The ways in which English will be useful to you.

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## C.

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One morning I came suddenly on the fresh tracks of what seemed to be a huge elephant. There was very little breeze but what there was came from the direction in which the tracks led. I followed them as fast as I could and in about half an hour I heard him in front of me. At that I checked my pace and crept 5 on with extreme caution. It was lucky for me that I did for when I got round some thorn-trees and a big boulder that was sticking up out of the slope, I saw the most amazing elephant I had ever seen moving slowly across a patch of bare hillside about a hundred yards ahead of me. His tail end was towards me and 10 I could not see his tusks except for a flash of white now and then as he flapped his ears and moved his head from side to side.

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*Tuesday*  
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**Lower Certificate in English**

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**Lower Certificate**

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*Tuesday*  
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*2½ hours*

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**Lower Certificate in English**

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7. Read carefully the following passage and answer questions (i), (ii) and (iii).

One morning I came suddenly on the fresh tracks of what seemed to be a huge elephant. There was very little breeze but what there was came from the direction in which the tracks led. I followed them as fast as I could and in about half an hour I heard him in front of me. At that I checked my pace and crept 5 on with extreme caution. It was lucky for me that I did for when I got round some thorn-trees and a big boulder that was sticking up out of the slope, I saw the most amazing elephant I had ever seen moving slowly across a patch of bare hillside about a hundred yards ahead of me. His tail end was towards me and 10 I could not see his tusks except for a flash of white now and then as he flapped his ears and moved his head from side to side.

I at once determined to get him on the slope and I managed to work round behind him without mishap. When he came into view again he was about eighty yards away and slightly below me. 15 But he had stopped and was obviously on the alert. His trunk was raised and moving about for a scent. I lay down and putting my rifle to my shoulder waited for my chance.

It never came. Several times I was about to shoot but always he moved just at the wrong moment. He was restless and 20 obviously worried about something and I began to wonder if he had scented me. And then all of a sudden I felt a little puff of breeze in my face. It came straight from the elephant to me. At the same moment a strange change came over the beast. He moved slowly and stealthily down the slope; a minute later I 25 heard the crashing of branches and the squeal of a thoroughly infuriated elephant.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) What did the writer do when, after following the tracks, he heard the elephant in front of him?

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(d) What told the writer that the elephant was on the alert?

(ii) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: tracks (l. 1); determined (l. 13); managed to work round (ll. 13, 14); mishap (l. 14); obviously (l. 16); on the alert (l. 16); infuriated (l. 27).

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. You have arrived at your house or flat without your door-key, and there is no one in. Write to a friend describing this experience and saying how you were able finally to get in.
2. You have received two tickets for the theatre. Invite a friend to accompany you, arranging time and place of meeting, and suggesting how to spend the rest of the evening.
3. You have received goods intended for another firm. On inspecting them you find you would like to have similar ones yourself. Write asking whether you should send the goods on or whether you should keep them.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. The most important or most interesting experience you have had in the last five years.

[TURN OVER

5. The ways in which English will be useful to you.

6. A report to your employers on sales in the district for which you are responsible. Conclude your report with suggestions for improving business.

C.

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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[TURN OVER

5. The ways in which English will be useful to you.
6. A report to your employers on sales in the district for which you are responsible. Conclude your report with suggestions for improving business.

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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[TURN OVER

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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**[TURN OVER**

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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**[TURN OVER**

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**19 JUNE 1956**

*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

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[TURN OVER

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**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*

**11 DEC. 1956**

*Afternoon*

*2½ hours*

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

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A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. Last week you met an Englishman or Englishwoman for the first time. Describe this meeting to a friend.
2. A friend who is a visitor to your home has to consult a doctor or a dentist. Give advice on whom to see.
3. You are shortly paying a visit to a foreign country and may be some time away from home. Write to your bank to arrange to take a certain sum of money when you go and to have further sums later.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. "I knocked at the front door and waited." Using this as your first sentence recount the events which followed.
5. How my home town and life in my home town could be improved.

[TURN OVER

6. Describe the activities which go on in the City of London or any other large commercial centre.

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

I climbed into bed and rolled myself in my blankets, first extinguishing the light that burned steadily near the door. I lay still trying to get to sleep but my fears made that impossible and soon I sat up in bed peering into the darkness and occasionally glancing at the round window in the side of the ship which 5 seemed like a plate suspended in the blackness. For an hour I must have sat like this, and then I was suddenly roused by a draught of cold air. I jumped out of bed, but, not having allowed for the motion of the ship, I was instantly thrown violently across the room. 10

With difficulty I got up and groped my way towards the window which, to my surprise, I found wide open for I was certain that I had fastened it securely before I went to bed.

Suddenly, as I stood by the window, I distinctly heard something moving behind me and, a moment afterwards, as I turned 15 to look, I heard a faint groan. I sprang across the room and jumped back into bed, only to discover to my horror that someone else was lying there. Stretching out my hand, I laid hold of something that had the shape of a man's arm but was smooth, wet and icy-cold. I pulled, but the creature, whatever it was, 20 tore itself out of my grasp, ran across the room, opened the door and rushed out. Quickly recovering from my fright, I gave chase at top speed but I was too late. The passage outside my room was empty.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) After he had gone to bed, how did the writer show his nervousness?

(b) Why was the writer thrown across the room?

(c) Why was he surprised to find the window open?

(d) Why was it easy for the creature to slip out of the writer's grasp?

(ii) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage:

extinguishing (l. 2); peering (l. 4); occasionally glancing (ll. 4, 5); suspended in the blackness (l. 6); draught (l. 8); groped (l. 11); at top speed (l. 23).

(iii) Describe in not more than 80 words what happened to the writer from the time he jumped out of bed to the time the creature rushed out of the room. Use your own words as far as possible. Do not include anything which is not in the passage.

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**11 DEC. 1956**  
*Afternoon*  
 $2\frac{1}{2}$  hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE  
*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects; you should make the beginning and ending like those of an ordinary letter:

1. Last week you met an Englishman or Englishwoman for the first time. Describe this meeting to a friend.
2. A friend who is a visitor to your home has to consult a doctor or a dentist. Give advice on whom to see.
3. You are shortly paying a visit to a foreign country and may be some time away from home. Write to your bank to arrange to take a certain sum of money when you go and to have further sums later.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words:

4. "I knocked at the front door and waited." Using this as your first sentence recount the events which followed.
5. How my home town and life in my home town could be improved.

[TURN OVER

6. Describe the activities which go on in the City of London or any other large commercial centre.

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

I climbed into bed and rolled myself in my blankets, first extinguishing the light that burned steadily near the door. I lay still trying to get to sleep but my fears made that impossible and soon I sat up in bed peering into the darkness and occasionally glancing at the round window in the side of the ship which 5 seemed like a plate suspended in the blackness. For an hour I must have sat like this, and then I was suddenly roused by a draught of cold air. I jumped out of bed, but, not having allowed for the motion of the ship, I was instantly thrown violently across the room. 10

With difficulty I got up and groped my way towards the window which, to my surprise, I found wide open for I was certain that I had fastened it securely before I went to bed.

Suddenly, as I stood by the window, I distinctly heard something moving behind me and, a moment afterwards, as I turned 15 to look, I heard a faint groan. I sprang across the room and jumped back into bed, only to discover to my horror that someone else was lying there. Stretching out my hand, I laid hold of something that had the shape of a man's arm but was smooth, wet and icy-cold. I pulled, but the creature, whatever it was, 20 tore itself out of my grasp, ran across the room, opened the door and rushed out. Quickly recovering from my fright, I gave chase at top speed but I was too late. The passage outside my room was empty.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) After he had gone to bed, how did the writer show his nervousness?

(b) Why was the writer thrown across the room?

(c) Why was he surprised to find the window open?

(d) Why was it easy for the creature to slip out of the writer's grasp?

(ii) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage:

extinguishing (l. 2); peering (l. 4); occasionally glancing (ll. 4, 5); suspended in the blackness (l. 6); draught (l. 8); groped (l. 11); at top speed (l. 23).

(iii) Describe in not more than 80 words what happened to the writer from the time he jumped out of bed to the time the creature rushed out of the room. Use your own words as far as possible. Do not include anything which is not in the passage.

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**25 JUNE 1957**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects. You should make the beginning and ending like those of an ordinary letter, but the address is not to be counted in the total number of words.

1. You were one hour late for a meeting with a friend, who was not there when you arrived. Write giving your apologies and the reasons for your lateness.

2. You have been fortunate in securing a flat or small house but would like a friend to share the expense with you. Write giving details of the arrangement you propose.

3. Write to a firm in England asking where their agents or representatives are in your country. You are particularly interested in obtaining spare parts for machinery or cars speedily.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. With the exception of your native country, which country would you like to live in and why?

[TURN OVER

5. A family celebration—birthday, wedding, or anniversary—in which you took part.

6. Modern methods in business and commerce.

C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

At low tide he walked over the sands to the headland and round the corner to the little bay facing the open sea. It was inaccessible by boat, because seams of rock jutted out and currents swirled round them treacherously. But you could walk there if you chose one of the lowest ebb tides that receded a very 5 long way. You could not linger on the expedition, for once the tide was on the turn, it came in rapidly. For this reason very few people cared to explore the little bay and the cave at the back of it. But the unknown always drew this man like a magnet. 10

He found the bay fresh and unlittered, as it was completely covered by the sea at high tide. The cave looked mysteriously dark, cool and inviting, and he penetrated to the furthest corner where he discovered a wide crack, rather like a chimney. He peered up and thought he could see a patch of daylight. Then 15 he returned to the bay and calculated that he could rest in the sunshine for five minutes before going back. The next thing he knew was waking up to find water lapping at his feet. He ran back to the cave in a panic, knowing that the waves would soon catch up with him there. His only chance of escape was up that 20 crack. He felt the sides which were smooth and slippery with the perpetual surging of the water, but he guessed that if he could once establish a foothold, higher up it would be easier. Quick as lightning he kicked off shoes and socks, well aware that he would be able to cling better with bare feet. The first few 25 steps were difficult and he was terrified lest he should slip. But he felt resolutely for one foothold after another and slowly inched his way towards the top. Then with one last effort he pulled himself on to the cliff. He was safe.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

- (a) When was it possible to visit the bay?
- (b) How was it that the man found the bay fresh and unlittered?
- (c) How did he guess that there might be a way of escape through the cave?
- (d) Why did he kick off his shoes and socks?

(ii) Choose four of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: inaccessible (l. 3); receded (l. 5); on the turn (l. 7); rapidly (l. 7); penetrated (l. 13); calculated (l. 16); perpetual surging (l. 22).

(iii) Describe in not more than 80 words what the man did after he reached the little bay until he found safety on the top of the cliff. Use your own words as far as possible. Do not include anything that is not in the passage.

78

impossible  
entered

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**25 JUNE 1957**

*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects. You should make the beginning and ending like those of an ordinary letter, but the address is not to be counted in the total number of words.

1. You were one hour late for a meeting with a friend, who was not there when you arrived. Write giving your apologies and the reasons for your lateness.
2. You have been fortunate in securing a flat or small house but would like a friend to share the expense with you. Write giving details of the arrangement you propose.
3. Write to a firm in England asking where their agents or representatives are in your country. You are particularly interested in obtaining spare parts for machinery or cars speedily.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. With the exception of your native country, which country would you like to live in and why?

[TURN OVER

5. A family celebration—birthday, wedding, or anniversary—in which you took part.

6. Modern methods in business and commerce.

C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

At low tide he walked over the sands to the headland and round the corner to the little bay facing the open sea. It was inaccessible by boat, because seams of rock jutted out and currents swirled round them treacherously. But you could walk there if you chose one of the lowest ebb tides that receded a very long way. You could not linger on the expedition, for once the tide was on the turn, it came in rapidly. For this reason very few people cared to explore the little bay and the cave at the back of it. But the unknown always drew this man like a magnet.

10

He found the bay fresh and unlittered, as it was completely covered by the sea at high tide. The cave looked mysteriously dark, cool and inviting, and he penetrated to the furthest corner where he discovered a wide crack, rather like a chimney. He peered up and thought he could see a patch of daylight. Then he returned to the bay and calculated that he could rest in the sunshine for five minutes before going back. The next thing he knew was waking up to find water lapping at his feet. He ran back to the cave in a panic, knowing that the waves would soon catch up with him there. His only chance of escape was up that crack. He felt the sides which were smooth and slippery with the perpetual surging of the water, but he guessed that if he could once establish a foothold, higher up it would be easier. Quick as lightning he kicked off shoes and socks, well aware that he would be able to cling better with bare feet. The first few steps were difficult and he was terrified lest he should slip. But he felt resolutely for one foothold after another and slowly inched his way towards the top. Then with one last effort he pulled himself on to the cliff. He was safe.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

- (a) When was it possible to visit the bay?
- (b) How was it that the man found the bay fresh and unlittered?
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- (d) Why did he kick off his shoes and socks?

(ii) Choose four of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: inaccessible (l. 3); receded (l. 5); on the turn (l. 7); rapidly (l. 7); penetrated (l. 13); calculated (l. 16); perpetual surging (l. 22).

(iii) Describe **in not more than 80 words** what the man did after he reached the little bay until he found safety on the top of the cliff. Use your own words as far as possible. Do not include anything that is not in the passage.



**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**25 JUNE 1957**  
*Afternoon*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

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A.

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3. Write to a firm in England asking where their agents or representatives are in your country. You are particularly interested in obtaining spare parts for machinery or cars speedily.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. With the exception of your native country, which country would you like to live in and why?

[TURN OVER

5. A family celebration—birthday, wedding, or anniversary—in which you took part.

6. Modern methods in business and commerce.

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

At low tide he walked over the sands to the headland and round the corner to the little bay facing the open sea. It was inaccessible by boat, because seams of rock jutted out and currents swirled round them treacherously. But you could walk there if you chose one of the lowest ebb tides that receded a very long way. You could not linger on the expedition, for once the tide was on the turn, it came in rapidly. For this reason very few people cared to explore the little bay and the cave at the back of it. But the unknown always drew this man like a magnet.

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(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

- (a) When was it possible to visit the bay?
- (b) How was it that the man found the bay fresh and unlittered?
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- (d) Why did he kick off his shoes and socks?

(ii) Choose four of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: inaccessible (l. 3); receded (l. 5); on the turn (l. 7); rapidly (l. 7); penetrated (l. 13); calculated (l. 16); perpetual surging (l. 22).

(iii) Describe in not more than 80 words what the man did after he reached the little bay until he found safety on the top of the cliff. Use your own words as far as possible. Do not include anything that is not in the passage.

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**25 JUNE 1957**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

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B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. With the exception of your native country, which country would you like to live in and why?

[TURN OVER

5. A family celebration—birthday, wedding, or anniversary—in which you took part.

6. Modern methods in business and commerce.

C.

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10

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(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

- (a) When was it possible to visit the bay?
- (b) How was it that the man found the bay fresh and unlittered?
- (c) How did he guess that there might be a way of escape through the cave?
- (d) Why did he kick off his shoes and socks?

(ii) Choose four of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: inaccessible (l. 3); receded (l. 5); on the turn (l. 7); rapidly (l. 7); penetrated (l. 13); calculated (l. 16); perpetual surging (l. 22).

(iii) Describe **in not more than 80 words** what the man did after he reached the little bay until he found safety on the top of the cliff. Use your own words as far as possible. Do not include anything that is not in the passage.

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**10 DEC. 1957**  
*Afternoon*  
 $2\frac{1}{2}$  hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE

*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter of between 80 and 100 words in length on **one** of the following subjects. You should make the beginning and ending like those of an ordinary letter, but the address is not to be counted in the total number of words.

1. You wish to attend a course in English, or other subjects. Write to the Secretary or Director of the course asking for information and outlining briefly your requirements.

2. An invitation to a friend to visit you in your new home. Mention what you would most like to show your friend.

3. Some goods which you ordered have not arrived, and if you do not receive them quickly the opportunity for selling them will be lost. You have already sent a telegram. Write a letter stating your complaint in more detail.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. By train, by car or by 'plane. Which method of travel do you prefer and why?

[TURN OVER

14  
20  
23  
16

5. You are about to leave your country to spend one year abroad. Give an account of the shopping you are doing in preparation.

6. How trade between countries can be improved.

C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

During our absence in America Tibby, the cat, stayed happily with our old maid, Maria, who had gone on her retirement to live in a village eight miles away. But one morning, shortly before we were due back, as he was sunning himself and dozing peacefully in the parlour window, a cow, who was being driven to market, left the street and walked straight through Maria's open door into the parlour, bellowing loudly. Fortunately the cow was removed before she could do any damage to Maria's room; but she had scared poor Tibby almost out of his wits. He dashed out of the back door, up a tree and over the hedge into the wood beyond.

When he did not return Maria, realising that he must be too frightened, put a fresh saucer of milk outside the back door every day, hoping to entice him back. She told everyone in the village of his disappearance, and notified the police. The milk remained untouched and there was no news of him.

On the day of our return Maria set off through the wood in search of him. This was no easy task for an old woman over seventy who was lame in one leg. When she reached the far side of the wood, she found herself in a lane where she had never been before. She could see three houses fairly close together and one, widely separated from the others, at the top of a hill. At each of the first three houses she asked the occupant whether he had seen a little black cat; and at each house she received an almost identical reply. A little black cat had arrived in the garden some days previously in a very agitated state and had been given a saucer of milk. Since then he had come regularly for milk, but would

never enter the house. She felt much happier as she trudged up the hill, for she was certain that she was on Tibby's trail. And at the fourth house she found him playing with some children on the lawn. Maria called him. He came to her at once, sat on her lap and purred.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

(a) Why was the cat frightened away from the cottage?

(b) After the cat had disappeared, why did Maria put a fresh saucer of milk outside the back door every day?

(c) Why was it difficult for Maria to go through the wood in search of the cat?

(d) After calling at the first three houses, why did Maria think that she was on the trail of the cat?

(ii) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: during our absence (l. 1); on her retirement (l. 2); shortly (l. 3); almost out of his wits (l. 9); entice (l. 14); notified (l. 15); widely separated (ll. 21, 22).

(iii) Describe in **not more than 80 words** what Maria did to recover the cat, after he had disappeared, until he came to her in the garden of the fourth house. Use your own words as far as possible. Do not include anything which is not in the passage.

scattered

gave notice

12	37
4	15
7	33
14	85
37	

**Lower Certificate**

ENGLISH  
COMP. AND LANG.

*Tuesday*  
**17 JUNE 1958**  
*Afternoon*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

ENGLISH COMPOSITION AND LANGUAGE  
*(Two hours and a half)*

**Three questions are to be answered: one from A, one from B, and all three parts of Question 7 in C.**

*Care must be given to spelling, punctuation, and paragraphing, and you must obey the instructions about the length of your answers to A and B.*

A.

Write a letter between 80 and 100 words in length on **one** of the following subjects. You should make the beginning and ending like those of an ordinary letter, but the address is not to be counted in the total number of words.

1. You have just returned from a visit to some friends or relations. Write thanking them for their hospitality and mention what you enjoyed most.
2. You have unfortunately to refuse an invitation from a friend to spend the evening with him. Write a letter of excuse and suggest another meeting.
3. You have received an enquiry from an English firm for goods which you supply. Answer the enquiry stating cost, date of delivery and terms of payment.

B.

Write a composition on **one** of the following subjects; the length should be between 250 and 350 words.

4. How you spent a day in your holidays when it was not possible to go out because of the bad weather.

[TURN OVER

5. The advantages for the world of one common language.
6. The present economic situation in your country.

## C.

7. Read carefully the following passage and answer questions (i), (ii) and (iii).

The sentry watched a hawk that hovered overhead, looking for some unsuspecting prey to pounce upon. Then he heard the distant, muffled roar of planes, then silence. For the past week he had been told to take note of everything that happened on the hill within his range of vision, and to report anything suspicious. 5 The hill led to an experimental factory, where new and secret weapons were tested. There was a threat of war and the factory would be invaluable to the enemy. So the approaches to it were watched day in, day out.

He shifted his position; he felt that he had been crouching in 10 the heather since the beginning of time, but only a couple of hours of this day's duty had passed. Suddenly he saw something falling from the sky like snow, only it was not snow. He put out his hand and caught bits that were drifting near him. They were thin strips of metal to confuse delicate instruments, 15 so that it would not be possible to detect the landing of enemy craft. Next he heard a long, low, continuous roar from the east and saw bundles descending from the sky which looked like umbrellas opening, but which he knew to be parachutes with men hanging from them. He wanted to go at once to give the 20 alarm, but he had to be sure that the parachutists were not his own men out on an exercise. The men were on the ground now. One of them pointed in the direction of the secret factory and they all began marching towards it. He had no more doubts and set off at once down the hill. He crawled slowly, sometimes 25 on his stomach, sometimes on his side, weaving himself a path through the heather down to the stream. Once there he decided that he had ample cover and started to run. But he had erred, for bullets were soon whistling past him. He dropped flat on the ground. Nobody came to search for him, so he counted up to 30 a hundred and then began crawling again. He moved tortuously and as silently as he could to his camp at the foot of the hill.

(i) Give short answers to each of the following questions, in your own words as far as possible, using only material contained in the passage. Use one complete sentence for each answer.

- (a) What orders had the sentry been given?
- (b) Why were all approaches to the factory watched?
- (c) Why did the sentry hesitate to give the alarm immediately he saw the parachutists?
- (d) Why did the sentry start to run when he reached the stream?

(ii) Choose **four** of the following words or phrases and give for each another word or phrase of similar meaning to that in which the word or phrase is used in the passage: unsuspecting (l. 2); within his range of vision (l. 5); invaluable (l. 8); day in, day out (l. 9); detect (l. 16); ample (l. 28); had erred (l. 28).

(iii) Describe in **not more than 80 words** what the sentry saw and did from the moment when the strips of metal fell from the sky until he got back to his camp.



Cambridge University

Prescribed Books

14 Dec. 1950

Jan. 1954 (4 copies)

Feb. 1954 (2 copies)

Mar. 1955 (20 copies)

Dec. 1955 (4 copies)

Jan. 1957

Dec. 1957 (2 copies)

**Lower Certificate**

PRESCRIBED  
BOOKS

*Thursday*

14 DECEMBER 1950

$2\frac{1}{2}$  hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

PRESCRIBED BOOKS

*(Two hours and a half)*

Candidates must answer **four** questions; not more than **two** questions may be taken from any one section of the paper.

SECTION I.

[Not more than **two** questions to be answered.]

H. G. WYATT: *The Tale of the Bounty*.

1. Describe the part played by Peter Heywood in the story.
2. Give a detailed account of **three** occasions on which Captain Bligh's crew felt they had been unjustly treated by him.
3. Describe the character and the manner of life of the Tahitians. What did Peter Heywood think of them?
4. From your reading of this book, give an account of the conditions and hazards of life at sea in the days of the *Bounty*.

SECTION II.

[Not more than **two** questions to be answered.]

ALISON UTTLEY: *The Country Child*.

5. Describe the changes which took place at Windystone Hall at mowing and at harvest time.
6. Describe **two** episodes connected with Susan's old oak tree.
7. Give an account of Susan's pastimes at different seasons of the year.
8. Describe the visit of the shooting-party to Windystone Hall.

## SECTION III.

[Not more than **two** questions to be answered.]

J. H. and A. M. WALSH: *A Heritage of Wonder Stories.*

9. Give an account of the parts played by the following in the stories in which they occur: Polyphemus, Pluto and Proserpine, Delilah.
10. Relate in your own words the adventures of one of King Arthur's knights.
11. Tell the story of Sohrab and Rustum.
12. Give a brief account of **two** miracles which form the subjects of tales in this collection.

## SECTION IV.

[Not more than **two** questions to be answered.]

ANTHONY HOPE: *The Prisoner of Zenda.*

13. Describe the character of Sapt, and the part he played in the story.
14. Give a full account of the adventure in which a tea-table figured prominently.
15. Describe the plan Rassendyll made for entering the Castle.
16. Describe the circumstances which made Flavia realise the true identity of the man she loved, and give an account of their last interview.

## SECTION V.

[Not more than **two** questions to be answered.]

L. WALMSLEY: *British Ports and Harbours*;  
J. HERBERT: *The Port of London.*

Candidates who offer this section must answer not more than **one** question on each book.

17. *British Ports and Harbours.*

**Either** (a) Say what you know of the British fishing industry and the ports of which it is the main concern.

**Or** (b) What do you know of past and present conditions in the depressed areas of Tyneside?

**Or** (c) Give reasons for the importance of Southampton.

18. *The Port of London.*

**Either** (a) Describe the work of the Port of London Authority.

**Or** (b) Describe the appearance of the Thames and its banks as you imagine it to have been in Pepys's time.

**Or** (c) Give an account of the quayside facilities required by London's immense and varied volume of trade.

## SECTION VI.

[Not more than **two** questions to be answered.]

G. M. YOUNG: *The Government of Britain*;  
M. LINDSAY: *The House of Commons*;  
S. C. ROBERTS: *British Universities.*

Candidates who offer this section should choose **one** question from each of two books.

19. *The Government of Britain.*

**Either** (a) Describe the ceremony of the Royal Assent, by which Bills become Acts; what is its significance?

**Or** (b) What is the importance of Question Time in the House of Commons?

**Or** (c) What do you know of the functions of the Treasury?

[TURN OVER

20. *The House of Commons.*

**Either** (a) Describe the conditions which made necessary the reform of Parliamentary representation in the nineteenth century.

**Or** (b) Describe what takes place at the formation of a new Government.

**Or** (c) Describe the causes of the Civil War between Cavaliers and Roundheads.

21. *British Universities.*

**Either** (a) Give an account of the scholastic achievements of Oxford in the Middle Ages.

**Or** (b) Describe the changes brought about in the English Universities by the Reformation.

**Or** (c) Give a brief account of the rise of the Provincial Universities in the nineteenth and twentieth centuries.

## Lower Certificate

PRESCRIBED  
BOOKS

*Tuesday*  
**22 JUNE 1954**  
*Morning*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

(Two hours and a half)

Candidates must answer **four** questions: not more than **two** questions may be taken from any one section of the paper.

## SECTION I.

JEROME K. JEROME: *Three Men in a Boat.*  
*Modern Short Stories.*

Candidates offering this section may answer not more than **two** questions, to be chosen from **either** "*Three Men in a Boat*" or "*Modern Short Stories*".

*Three Men in a Boat.*

1. When the three friends were discussing what they would take with them why did they decide not to take oil and cheese?
2. Describe what happened during the first night in the boat.
3. Give an account of some incidents which show Montmorency's likes and dislikes.
4. What does the author say about the importance of imagination to a fisherman?

*Modern Short Stories.*

5. Explain why the shop assistant and her cobbler uncle, Mr Mullins, were glad they had helped their strange visitor.
6. Describe the effects of the New Accelerator.
7. Say what you found attractive about the Periwinkle.
8. Explain why Mustela had no friends.

[TURN OVER

## SECTION II.

JOHN BUCHAN: *The Thirty-Nine Steps*.WILKIE COLLINS: *The Moonstone*.

Candidates offering this section may answer not more than **two** questions, to be chosen from **either** "*The Thirty-Nine Steps*" or "*The Moonstone*".

*The Thirty-Nine Steps.*

9. When did Hannay assume the rôle of milkman and why?
  10. Who was Alexander Turnbull and what part did he play in the story?
  11. Explain why Scudder's note was so important in this story.
  12. Tell in your own words the events which led to the final capture of the Black Stone.
- The Moonstone.*
13. Give an account of the activities and real identity of the three jugglers.
  14. Why were the shivering sands of such great importance in this story?
  15. What were the three predictions which the Inspector made and how were they fulfilled?
  16. Describe the character of Dr Jennings, illustrating your answer with incidents from the story.

## SECTION III.

H. WILLIAMSON: *Dandelion Days*.

Not more than **two** questions to be answered in this section.

17. Give a description of any two assistant masters at Colham School and describe what happened in their classes.

18. Describe the appearance and character of Soapy Sam the porter.

19. Describe the Christmas Magic Lantern Lecture by a distinguished Old Boy.

20. Give an account of Willie's preparations for the Cambridge Local Examination. Describe the announcement of the results, with particular reference to Willie's results.

## SECTION IV.

G. B. SHAW: *Arms and the Man*.

Not more than **two** questions to be answered in this section.

21. Describe in your own words the first meeting of Raina with the soldier.
22. Describe the character of Louka by referring to some incidents in the play.
23. Give an account of the part which Nicola plays, and show what the other characters think of him.
24. Explain why Raina becomes more attracted to Bluntschli than to Sergius.

## SECTION V.

J. M. BARRIE: *The Admirable Crichton*.

Not more than **two** questions to be answered in this section.

25. Describe a scene in which Lord Loam shows himself to be a "peer of advanced ideas."
26. What benefits did the shipwrecked party owe to Crichton during their stay on the island?
27. Describe the character of Lady Mary with particular reference to her behaviour on the island.
28. Give an account of how inequality came about on the island.

[TURN OVER

## SECTION VI.

ECKERSLEY AND SEAMAN: *The Pattern of England* (Volume I)

Not more than **two** questions to be answered in this section.

29. Illustrate what is meant when one says that the British Empire was not planned.

30. What changes took place in English industrial life between the two World Wars?

31. Describe briefly how the English countryside came to be as it is.

32. What are the duties of a British Prime Minister?

**Lower Certificate**

PRESCRIBED

BOOKS

Tuesday

**22 JUNE 1954**

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

PRESCRIBED BOOKS

(Two hours and a half)

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JEROME K. JEROME: *Three Men in a Boat.*

*Modern Short Stories.*

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*Three Men in a Boat.*

1. When the three friends were discussing what they would take with them why did they decide not to take oil and cheese?
2. Describe what happened during the first night in the boat.
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4. What does the author say about the importance of imagination to a fisherman?

*Modern Short Stories.*

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## SECTION II.

JOHN BUCHAN: *The Thirty-Nine Steps*.

WILKIE COLLINS: *The Moonstone*.

Candidates offering this section may answer not more than **two** questions, to be chosen from **either** "*The Thirty-Nine Steps*" or "*The Moonstone*".

*The Thirty-Nine Steps.*

9. When did Hannay assume the rôle of milkman and why?
10. Who was Alexander Turnbull and what part did he play in the story?
11. Explain why Scudder's note was so important in this story.
12. Tell in your own words the events which led to the final capture of the Black Stone.

*The Moonstone.*

13. Give an account of the activities and real identity of the three jugglers.
14. Why were the shivering sands of such great importance in this story?
15. What were the three predictions which the Inspector made and how were they fulfilled?
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## SECTION III.

H. WILLIAMSON: *Dandelion Days*.

Not more than **two** questions to be answered in this section.

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J. M. BARRIE: *The Admirable Crichton*.

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26. What benefits did the shipwrecked party owe to Crichton during their stay on the island?
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## Lower Certificate

PRESCRIBED

BOOKS

*Tuesday***22 JUNE 1954***Morning***2½ hours**

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

*(Two hours and a half)*

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JEROME K. JEROME: *Three Men in a Boat.*

*Modern Short Stories.*

Candidates offering this section may answer not more than **two** questions, to be chosen from **either** "*Three Men in a Boat*" or "*Modern Short Stories*".

*Three Men in a Boat.*

1. When the three friends were discussing what they would take with them why did they decide not to take oil and cheese?

2. Describe what happened during the first night in the boat.

3. Give an account of some incidents which show Montmorency's likes and dislikes.

4. What does the author say about the importance of imagination to a fisherman?

*Modern Short Stories.*

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[TURN OVER]



## SECTION II.

JOHN BUCHAN: *The Thirty-Nine Steps*.

WILKIE COLLINS: *The Moonstone*.

Candidates offering this section may answer not more than **two** questions, to be chosen from **either** "*The Thirty-Nine Steps*" or "*The Moonstone*".

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9. When did Hannay assume the rôle of milkman and why?
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[TURN OVER

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## Lower Certificate

PRESCRIBED

BOOKS

Tuesday

14 DEC. 1954

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

*(Two hours and a half)*

*Candidates must answer four questions: not more than two questions may be taken from any one section of the paper.*

## SECTION I

JEROME K. JEROME: *Three Men in a Boat.**Modern Short Stories.*

*Candidates offering this section may answer not more than two questions to be chosen from either Three Men in a Boat or Modern Short Stories.*

*Three Men in a Boat.*

1. What does the author say about the musical ability of his two friends?

2. Tell in your own words the fanciful account of what happened on "the ever-to-be-remembered June morning of 1215."

3. Describe what happened on the occasion when Harris stayed behind in the boat, and the other two returned from their walk round Henley.

4. What does the author say about the various forms of boating?

*Modern Short Stories.*

5. Say what you found attractive about Daniel Sheather.

6. Describe what were likely to be the effects of the new Retarder which Professor Gibberne was working on after his success with his Accelerator.

7. What happened when the Commanding Officer acted upon his suspicions of the Northman?

8. What did you find of interest in *The Kings of Orion*?

#### SECTION II.

JOHN BUCHAN: *The Thirty-nine Steps*.

WILKIE COLLINS: *The Moonstone*.

Candidates offering this section may answer not more than **two** questions to be chosen from **either** *The Thirty-nine Steps* **or** *The Moonstone*.

*The Thirty-nine Steps*.

9. Describe fully the reasons for Hannay's assuming the rôle of roadman.

10. What opinions did Hannay form of the character of Scudder and how were these confirmed by what Sir Walter told him?

11. Describe Hannay's meeting with the Innkeeper, and explain why it was successful.

12. Give instances of Hannay's ability to observe details and people and show how this helped him in his mission.

*The Moonstone*.

13. Describe Lady Verinder's character with particular reference to her relations with her daughter and Rosanna Spearman.

14. When and why did Rachel Verinder quarrel with Franklin Blake?

15. What part did Dr Candy play in the mystery?

16. Describe the character of Betteridge, illustrating your answer with incidents from the story.

#### SECTION III.

H. WILLIAMSON: *Dandelion Days*.

Not more than **two** questions to be answered in this section.

17. Give a description of the Head Master of Colham School, mentioning two incidents which illustrate his character.

18. What part did Dolly play in the story?

19. How did Willie get on with his cousin Phillip? Illustrate your answer with incidents from the story.

20. Give an account of the Speech Day at Colham Grammar School.

#### SECTION IV.

G. B. SHAW: *Arms and the Man*.

Not more than **two** questions to be answered in this section.

21. Tell in your own words how Bluntschli came to be called the chocolate cream soldier, and why this is important in the play.

22. Describe the character of Catherine by referring to some incidents in the play.

23. Give an account of the part which Petkoff plays, and show what the other characters think of him.

24. What was the importance of Bluntschli's boast that his rank was the highest known in Switzerland?

#### SECTION V.

J. M. BARRIE: *The Admirable Crichton*.

Not more than **two** questions to be answered in this section.

25. Show by reference to the play what Crichton thought of his master's ideas of equality.

26. Describe the arrangements which were devised for the comfort of those who were shipwrecked on the island.

27. Describe the characters of Tweeny and Lord Ernest.
28. Give an account of the changes which came about after the castaways returned to civilisation.

## SECTION VI.

ECKERSLEY and SEAMAN: *The pattern of England* (Volume I).

*Not more than two questions to be answered in this section.*

29. Describe briefly the structure of the British Commonwealth and Empire today.
30. What do you understand by the term "Suburbia?"
31. What do you know about English weather and seasons?
32. Give an account of the English system of local government.

## Lower Certificate

PRESCRIBED  
BOOKS

*Tuesday*

21 JUNE 1955

*Morning*

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

*(Two hours and a half)*

*Candidates must answer four questions: not more than two questions may be taken from any one section of the paper.*

## SECTION I.

MURIEL DENISON: *Susannah of the Mounties.*

*Modern Short Stories.*

*Candidates offering this section may answer not more than two questions, to be chosen from either "Susannah of the Mounties" or "Modern Short Stories".*

*Susannah of the Mounties.*

1. Tell in your own words the story of the inspection.
2. Describe the character of Miss Vicky, illustrating your answer with incidents from the story.
3. Describe the lessons which Sue had to learn and the success she had in learning them.
4. Who was Almighty Voice and what part did he play in the story?

*Modern Short Stories.*

5. What did Jim Albro look like? Describe one incident which illustrates some part of his character.
6. What were the five characters Kin Yen learned to draw? Describe the success he had with this accomplishment.
7. Say what pleasure W. H. Hudson's story *Nino Diablo* has given you and illustrate your answer by reference to the story.

[TURN OVER

8. Tell in your own words the story of Oul-i-but's account of the great bear hunt.

## SECTION II.

H. G. WELLS: *The Country of the Blind and Other Stories*.

CHARLES DICKENS: *Great Expectations*.

Candidates offering this section may answer not more than **two** questions, to be chosen from **either** "The Country of the Blind and Other Stories" or "Great Expectations".

*The Country of the Blind and Other Stories*.

9. Why was Nunez unhappy in the Country of the Blind? What remedy was finally suggested and what was the outcome?

10. Describe what happened when Wallace told his school-mates about the Door in the Wall.

11. What remedy did Formalyn suggest for Pycraft's misfortunes and how far was it successful?

12. Do you think an ostrich had actually swallowed the diamond? Give reasons for your answer.

*Great Expectations*.

13. Give an account of Pip's adventures up to the time of the recapture of the convicts.

14. Describe the character of Miss Havisham, illustrating your answer with incidents from the story.

15. Describe Pip's life in London with particular reference to his friendship with Herbert Pocket.

16. Who was Compeyson? What part does he play in the story?

## SECTION III.

H. W. WILLIAMSON: *Dandelion Days*.

Not more than **two** questions to be answered in this section.

17. What was Mr. Maddison's attitude to bird nesting? Describe what happened when Willie made his climb to the rooks' nests.

18. Describe the adventures of the boys with (a) the French master and (b) the Chemistry master.

19. What was the Bullnote Memorial Prize? Show how Willie set about trying to win this and describe what happened when the result was announced.

20. What part did John Fry play in the book?

## SECTION IV.

G. B. SHAW: *Arms and the Man*.

Not more than **two** questions to be answered in this section.

21. Give an account of what happens in the first part of the play up to the time the intruder falls fast asleep.

22. Explain the attitude which Sergius adopts to incidents in the play.

23. Say what part Catherine plays in *Arms and the Man*, illustrating your answer with incidents from the play.

24. "Nicola's the ablest man I've met in Bulgaria. I'll make him manager of a hotel if he can speak French and German." Who says this, when and in what circumstances? What is Nicola's part in the situations of the play?

## SECTION V.

J. M. BARRIE: *The Admirable Crichton*.

Not more than **two** questions to be answered in this section.

25. Describe the scene where Lord Loam brings in his servants on terms of equality.

26. Describe the character of Lady Mary, illustrating your answer with incidents from the play.

27. Show how the stay on the island brings about a change in the actions and conduct of Tweeny.

28. Describe how amusement is provided by the accounts written by the castaways of their adventures on the island.

[TURN OVER

## SECTION VI.

ECKERSLEY AND SEAMAN: *The Pattern of England*, Vol. 2.

Not more than **two** questions to be answered in this section.

29. Describe the main qualities which a good Civil Servant must possess. How does a recruit gain admission to the higher ranks of the English Civil Service?

30. What efforts have been made to encourage the drama in England during the last twenty-five years and how far have they been successful?

31. Describe the working of an Assize Court.

32. Show how the English system of education develops a sense of responsibility in young people.

## Lower Certificate

PRESCRIBED

BOOKS

Tuesday

21 JUNE 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

(Two hours and a half)

Candidates must answer **four** questions: not more than **two** questions may be taken from any one section of the paper.

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*Susannah of the Mounties*.

1. Tell in your own words the story of the inspection.
2. Describe the character of Miss Vicky, illustrating your answer with incidents from the story.
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## Lower Certificate

PRESCRIBED

BOOKS

Tuesday

13 DEC. 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

(Two hours and a half)

Candidates must answer **four** questions: not more than **two** questions may be taken from any one section of the paper.

## SECTION I

MURIEL DENISON: *Susannah of the Mounties*.

*Modern Short Stories*.

Candidates offering this section may answer not more than **two** questions to be chosen from **either** "*Susannah of the Mounties*" **or** "*Modern Short Stories*."

*Susannah of the Mounties*.

1. Say how Sue joined the Force and describe her visit to headquarters.

2. Describe the character of Laughing Cloud, illustrating your answer with incidents from the story.

3. Describe Sue's adventures while she was learning to become an accomplished rider.

4. Give an account of the wedding and what happened to Sue.

*Modern Short Stories*.

5. Explain why the Sheather-Stace wedding cake was only two tiers high.

6. What was the story of Miss Scantlebury's clock? Show how this was related to the story of Jan and Maria Trueman.

[TURN OVER



7. Describe the Northman and his cabin.
8. Tell in your own words how the Governor treated Ungazi and his followers.

## SECTION II.

H. G. WELLS: *The Country of the Blind and Other Stories.*

CHARLES DICKENS: *Great Expectations.*

Candidates offering this section may answer not more than **two** questions to be chosen from either "*The Country of the Blind and Other Stories*" or "*Great Expectations*".

*The Country of the Blind and Other Stories.*

9. What part does Medina-saroté play in the story of the Country of the Blind?
  10. Give an account of the occasions after Wallace had left school when the Door in the Wall appeared and say what happened each time.
  11. Describe the character of Formalyn, illustrating your answer with incidents from the story.
  12. Say what you think was the relationship between Padishah and Potter, giving your reasons.
- Great Expectations.*
13. Describe the character of Mrs. Joe Gargery, illustrating your answer with incidents from the story.
  14. Give a description of Satis House and some of the chief incidents which happened there.
  15. Who was the strange visitor to Pip at Barnard's Inn, and what part does he play in the story?
  16. Say whether you found Estella an attractive or an unattractive person. Give reasons for your answer.

## SECTION III.

H. W. WILLIAMSON: *Dandelion Days.*

Not more than **two** questions to be answered in this section.

17. Give an account of the interests which the boys from the school took in nature, and refer to **two** incidents in particular.
18. Describe the character of Bill Nye, illustrating your answer with incidents from the story.
19. Give an account of the various preparations which were made for the annual Speech Day at Colham School.
20. What were the events which led up to the last meeting between Willie and Jack? Say what you found interesting in the account of that evening.

## SECTION IV.

G. B. SHAW: *Arms and the Man.*

Not more than **two** questions to be answered in this section.

21. Show how Raina deceives her father and why.
22. "You said you'd told only two lies in your whole life. Dear young lady; isn't that rather a short allowance? I'm quite a straightforward man myself; but it wouldn't last me a whole morning." Who says this, when and in what circumstances? What is the importance in the play of the incident from which this is taken?
23. Say what part Louka plays in *Arms and the Man*, illustrating your answer with incidents from the play.
24. Give an account of what follows in the play when Raina's father explains that she is accustomed to every comfort and Bluntschli enumerates what he can offer. Why is this incident amusing?

[TURN OVER

## SECTION V.

J. M. BARRIE: *The Admirable Crichton*.

Not more than **two** questions to be answered in this section.

25. Describe the reactions of Lord Loam's servants on the occasion when they are brought into the drawing-room for tea.
26. Describe the character of Ernest, illustrating your answer with incidents from the play.
27. Show how the stay on the island brings about a change in the actions and conduct of Crichton.
28. Describe how amusement is provided by the questions which Lady Brocklehurst asks about life on the island.

## SECTION VI.

ECKERSLEY and SEAMAN: *The Pattern of England, Volume 2*.

Not more than **two** questions to be answered in this section.

29. Describe some of the ceremonial functions and social activities which illustrate the place which the Crown occupies in British life.
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31. Describe the work of barristers and solicitors.
32. Give an account of the chief weekly periodicals which are published in England.

## Lower Certificate

PRESCRIBED

BOOKS

Tuesday

13 DEC. 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

(Two hours and a half)

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1. Say how Sue joined the Force and describe her visit to headquarters.
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7. Describe the Northman and his cabin.
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## Lower Certificate

PRESCRIBED

BOOKS

Tuesday

13 DEC. 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

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## Lower Certificate

PRESCRIBED

BOOKS

Tuesday

13 DEC. 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

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## Lower Certificate

PRESCRIBED  
BOOKS

Tuesday

25 JUNE 1957

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

PRESCRIBED BOOKS

(Two hours and a half)

Candidates must answer **four** questions which must be chosen from at least **two** books.

SHIRLEY DARBYSHIRE: *Young Nurse Carter*.

1. Write an account of Caroline's friendship with Clive.

2. "I'm giving it up!" cried Dora incoherently. "I've been to Matron and I'm giving it up. I can't stand it any longer." By referring to actual events in the story, show clearly why Dora Matthews decided to leave nursing.

3. Write about Caroline's experiences in the Operating Theatre.

4. Describe the case of Dorothy Seddon, and say what effect it had on Caroline.

SIR ARTHUR QUILLER COUCH: *Harry Revel*.

5. Tell in your own words the incident of Archibald and the bull.

6. Give an account of Harry's meeting with Miss Isabel Brooks and what followed.

7. Describe briefly the part played by Lydia Belcher in the story of Harry Revel.

8. How did it come about that Harry went to the war in Wellington's army? How did he fare?

[TURN OVER



GEORGE SANGER: *Seventy Years a Showman.*

9. Tell in your own words Sanger's account of the smallpox scourge and the strange remedies for it.
10. What does Sanger say about (a) body snatchers, and (b) showmen's law?
11. Describe **three** novelties which Sanger introduced into his shows.
12. How did Sanger become 'Lord' George? What meetings did he have with Royalty?

A. G. STREET: *Farmer's Glory.*

13. What have you learned about the importance of sheep and shepherds from this book?
14. Describe the character and activities of Samuel Goodridge.
15. What were the chief amusements of the Canadian farming people?
16. What changes had come to English farming while the author was in Canada?

GEORGE ELIOT: *Mary Garth.*

17. What do you know of Mrs. Garth? Illustrate your answer with incidents from the story.
18. Why was it necessary for Mr. Vincy to visit Mr. Bulstrode at the bank? Write an account of the interview between them.
19. Write about the character of Mr. Farebrother and describe the part he plays in the story.
20. Describe the kind of life Mary Garth led in her work at Stone Court, referring to actual incidents in the story.

RUDOLPH BESIER: *The Barretts of Wimpole Street.*

21. Describe what takes place when Dr. Chambers visits Elizabeth at the beginning of the play.

22. What do you know of the character of Robert Browning? Relate your answer to incidents in the play.

23. Give an account of the visit of Captain Surtees Cook, and the result of that visit.

24. "Henry: Someone must give him Ba's letter.  
Henrietta: Let me—I should love to."

What was contained in this letter and why were Henrietta's remarks here and at the end of the play so dramatic?

EVELYN ATTWOOD: *Louis Pasteur.*

25. Describe Pasteur's treatment of hydrophobia in human beings which led to the decision to found the Pasteur Institute.

26. What do you know about Pasteur's wife?

27. Describe the interest shown in Pasteur's work by the Emperor, Napoleon III.

28. Why did Pasteur interrupt his researches on anthrax in order to grow grapes for one season? What did he do with the grapes when the harvest time arrived?

*On the Air.*

29. "Reading is a dangerous occupation." Explain what Sir Richard Livingstone has in mind when he says this. What arguments, on the other hand, does he put forward in favour of reading?

30. Describe how, during the first world war, Lord Elton tried deliberately to suppress worry; go on to show why he now is certain that he knows a better way to expel anxiety.

31. What arguments could be raised against the Civil Service examination system in China before the revolution of 1911?

32. What ideas does Sir William Slim put forward on the two kinds of courage—physical and moral?

**Lower Certificate**

PRESCRIBED  
BOOKS  
*Tuesday*  
**10 DEC. 1957**  
*Morning*  
 $2\frac{1}{2}$  hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

PRESCRIBED BOOKS  
*(Two hours and a half)*

*Candidates must answer four questions which must be chosen from at least two books.*

SHIRLEY DARBYSHIRE: *Young Nurse Carter.*

1. Write about the various ways in which the nurses at St. Hilda's spent their time while off duty.
2. What do you know about Nancy Forster?
3. Describe Caroline's experiences in the Casualty Department.
4. Compare and contrast the attitudes towards hospital life shown by Gladys Smith and Mrs. Emerson. Illustrate your answer by reference to incidents in the story.

SIR ARTHUR QUILLER COUCH: *Harry Revel.*

5. Tell in your own words what occurred in the Jew's house.
6. How did it come about that Harry went on a honeymoon?
7. Describe the part played by Miss Plinlimmon in the story of Harry Revel.
8. "You have done a service, boy, to the honour of two families." Give an account of the service Harry had performed and the reward he got.

**[TURN OVER**

GEORGE SANGER; *Seventy Years a Showman*.

9. What have you learned from this book about **two** of the following: (a) Jack Clark's fright; (b) how Sanger beat the Yankees; (c) how Sanger joined the Thanksgiving procession?
10. Describe what took place at the great Hyde Park Fair.
11. Tell in your own words two episodes which illustrate the training of performing animals.
12. Give an account of Sanger's experiences when the lions got loose.

A. G. STREET: *Farmer's Glory*.

13. What was the system of farming in Wiltshire in the author's early manhood?
14. Describe a typical harvest supper.
15. Give an account of the methods and advantages of scheduling land in Canada.
16. Describe the character and activities of Billy Page.

GEORGE ELIOT: *Mary Garth*.

17. What sort of person was Mr. Featherstone? Show clearly why he was of importance in the story.
18. Describe what happened when Fred Vincy reported at Mr. Garth's office. Go on to tell how Fred broke the news to his father that he intended to work for Mr. Garth.
19. Why was it that Mr. Farebrother spoke to Mary Garth at Fred Vincy's request? Describe this conversation between Mary and the Vicar.
20. Write about Lydgate and the part he plays in the story.

RUDOLPH BESIER; *The Barretts of Wimpole Street*.

21. Give an account of the first visit of Browning to Elizabeth.
22. Describe Bella's visit to Wimpole Street. Explain what you learn about Mr. Barrett's nature from Henrietta's reactions in this scene.
23. Show the importance of the doctors in this play, by describing any scenes in which they appear.
24. Describe the last scene between Barrett and Elizabeth.

EVELYN ATTWOOD: *Louis Pasteur*.

25. Describe how Pasteur tackled the problem of the sour wine and how his conclusions were tested.
26. What do you know of Pasteur's parents?
27. Describe Pasteur's work on rabies in dogs, showing how he discovered a method of giving rabies to animals and how he prepared a vaccine against the disease.
28. Write an account of the public trial suggested by Rossignol to test Pasteur's claim that sheep could be protected against anthrax by vaccination.

*On the Air*.

29. What do we learn from his radio talk, "Living and Reading", of Earl Wavell's own taste in books?
30. What reasons does Antony Ashton give for the rise to power of the committee-man? What qualities should he possess and what does he need to learn about committee technique?
31. The radio talks in *On the Air* contain several true stories of human courage. Outline what happened in three of these accounts.
32. What does P. H. Newby tell us about the effect upon him of reading Fielding's *Tom Jones* and the novels of Dostoevsky?

**Lower Certificate**

PRESCRIBED  
BOOKS

*Tuesday*  
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*Morning*  
 $2\frac{1}{2}$  hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

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*(Two hours and a half)*

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5. Tell in your own words what occurred in the Jew's house.
6. How did it come about that Harry went on a honeymoon?
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RUDOLPH BESIER: *The Barretts of Wimpole Street.*

21. Give an account of the first visit of Browning to Elizabeth.

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27. Describe Pasteur's work on rabies in dogs, showing how he discovered a method of giving rabies to animals and how he prepared a vaccine against the disease.

28. Write an account of the public trial suggested by Rossignol to test Pasteur's claim that sheep could be protected against anthrax by vaccination.

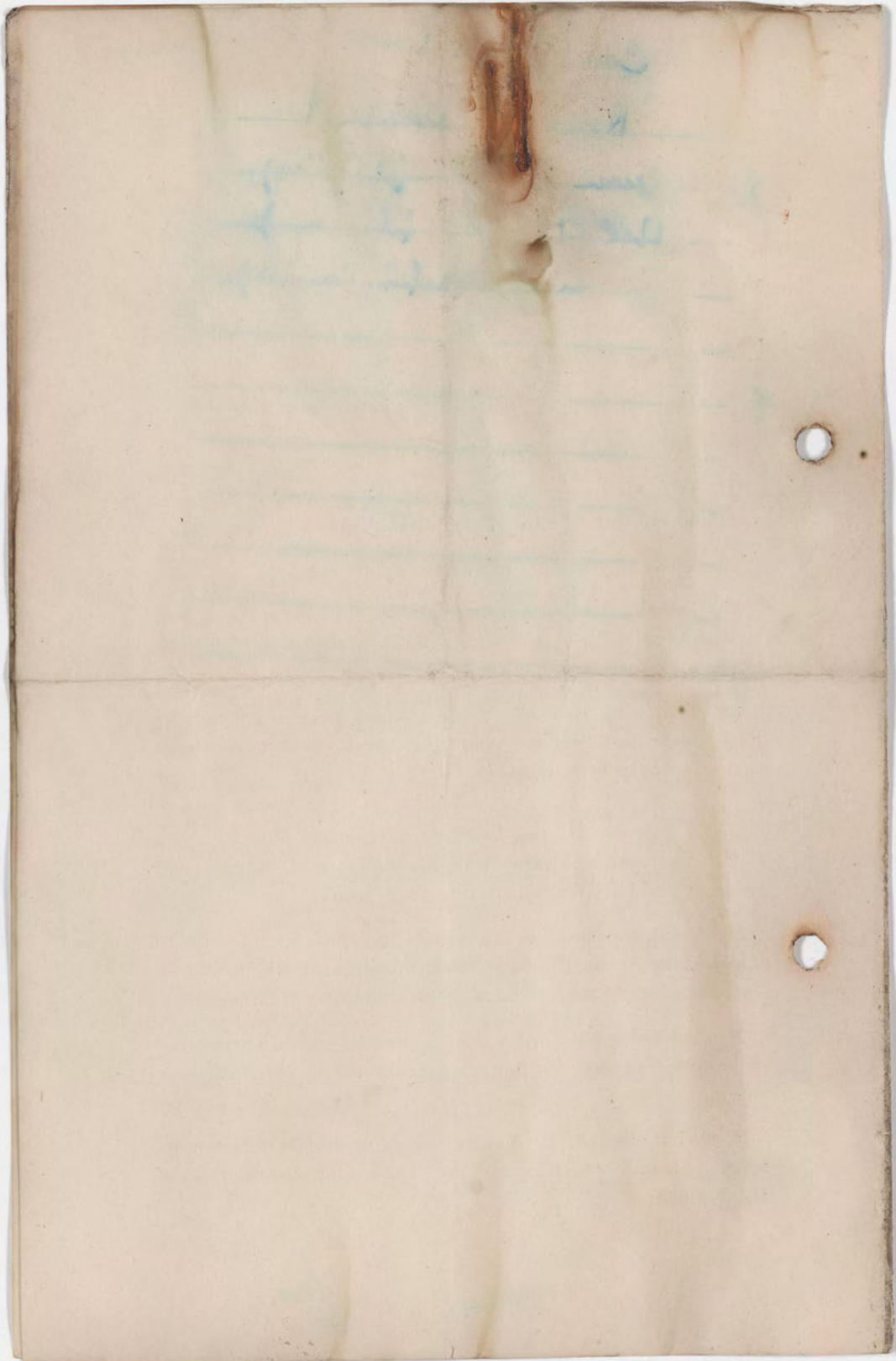
*On the Air.*

29. What do we learn from his radio talk, "Living and Reading", of Earl Wavell's own taste in books?

30. What reasons does Antony Ashton give for the rise to power of the committee-man? What qualities should he possess and what does he need to learn about committee technique?

31. The radio talks in *On the Air* contain several true stories of human courage. Outline what happened in three of these accounts.

32. What does P. H. Newby tell us about the effect upon him of reading Fielding's *Tom Jones* and the novels of Dostoevsky?



Can

Lower

Reel

Message A

June

(20 pages)

Dec 1

(3 pages)

Jan 1

(20 pages)

**Lower Certificate**READING  
PASSAGE A  
**JUNE 1954**UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE**Lower Certificate in English**

## READING PASSAGE A

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

Wednesday started like any other day. Rachel, as usual, flew out of the house five minutes before she need have started because she was so fond of her dancing school that she could not bear to waste time eating breakfast. Jane and Tim, who went to the same school, were having the kind of argument which they always had at breakfast.

"Hurry up and finish eating," their mother said. "You've only five minutes before you start."

Jane immediately helped herself to another slice of bread and began slowly to spread jam on it. Then she looked at her brother.

"You'd better hurry up, Tim. I always have to wait for you."

Tim had been just about to finish his coffee, but at that insult he put down his cup.

"That's the most monstrous lie. Yesterday I waited and waited at the gate, and you took so long that when we did get to school we'd already been marked off as absent."

Jane stuck her chin in the air.

"That was just once, and only because Mummy made me change my socks for so small a hole that nobody would have noticed."



**Lower Certificate**READING  
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N<sup>o</sup> 0477

**Lower Certificate**

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**DEC. 1955**

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

READING PASSAGE A

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

The garage was small but respectable. Its open front showed a few good used cars for sale, and at the back there was a small office. As Inspector Bell made his way towards it a woman hurried out, with a man following her. She looked pale and distressed, and the man, a fat fellow, also showed signs of agitation. "If I can do anything, you've only to let me know," he was saying. She did not answer, but ran past the Inspector and out.

Inspector Bell spoke to the man. "Are you the proprietor, Mr Walker?"

"I am." The man wiped his brow.

"That was the wife of your clerk Shirley—real name Gray—wasn't it? What was she doing here?"

"Who are you?" Walker growled. Bell showed him a card.

"What, more policemen?" He went back to the office, calling "Come in," and slammed the door behind them. "You want to know what the lady was doing? What do you think she was doing? Asking why the police had taken her husband away."

"She knows well enough already," answered Bell, "and so do you, don't you? You'd better own up."

**Lower Certificate**

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Nº 0475

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JUNE 1955UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

## READING PASSAGE A

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Tom stuffed his ticket carelessly into his waistcoat pocket as they ran for the train. Once inside the compartment, he fell asleep in the corner.

Richard saw the ticket sticking up out of Tom's pocket. He winked at the others and stealthily pulled it out.

A little later they heard the cry: "All tickets, please," down the corridor. Richard shook Tom by the shoulder.

"Wake up," he said. "The Inspector's coming, and he'll want to see your ticket."

Tom felt in his pocket. A look of alarm spread over his face as he realised that it was not there.

"I've lost it," he said. "I must have dropped it on the platform."

"Quick! Under the seat with you," cried Richard. "We'll hide you with our legs till he's gone."

Tom dived under the seat just as the Inspector appeared at the door. Richard handed him all the tickets.

"Six tickets and only five passengers," said the Inspector as he snipped them. "Where's the other one?"

"Under the seat," said Richard. "Look!"

"Whatever is he doing down there?" asked the Inspector.

"I don't know. Perhaps he finds it warmer down below."

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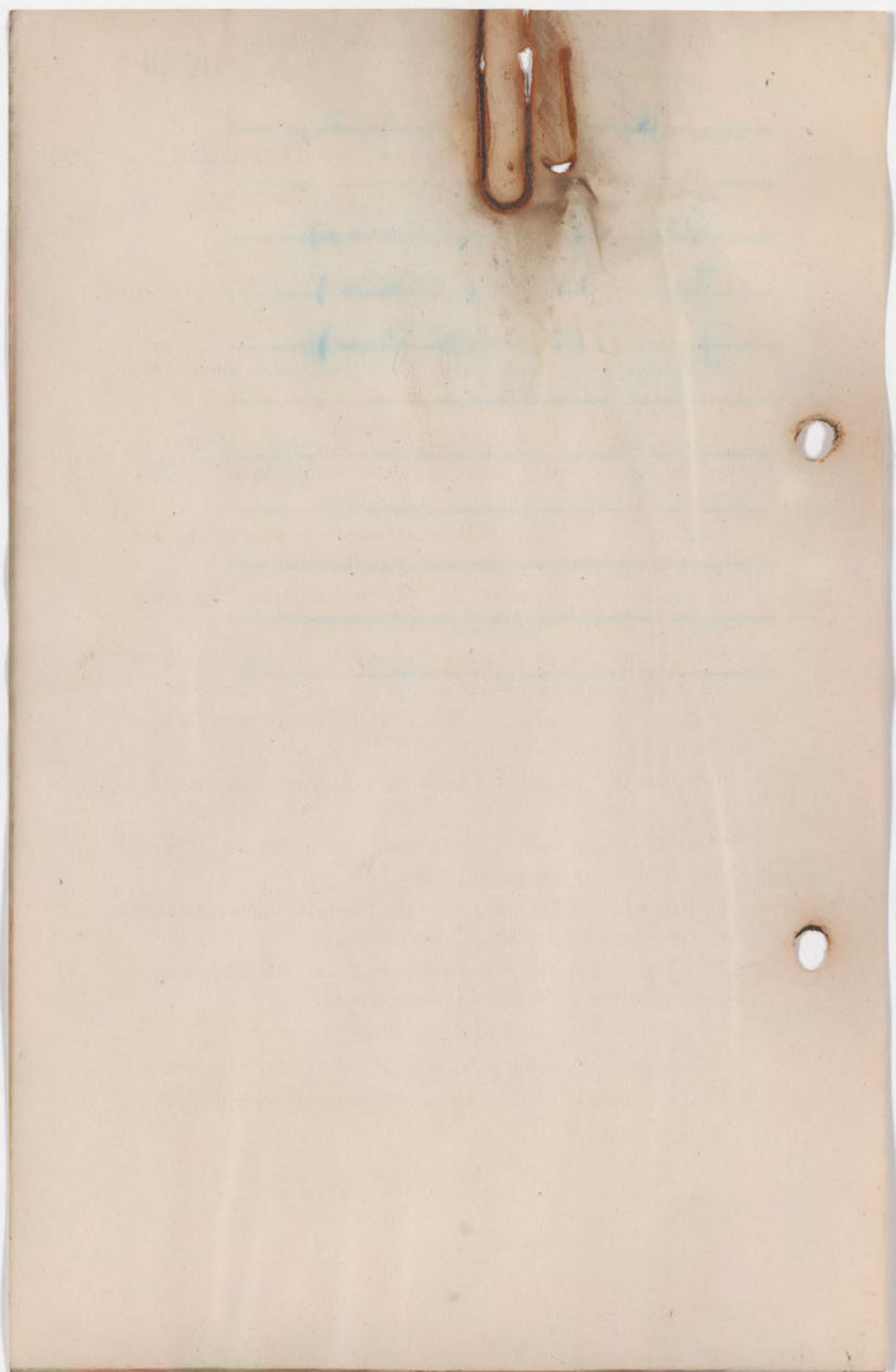
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Com. Certificate  
Rec. Page B  
Dec. 1953 (2 copies)  
June 1954 (2 copies)  
June 1954 (3 copies)



Nº 0476

Lower Certificate

READING  
PASSAGE B  
DEC. 1955

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

READING PASSAGE B

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

Miss Cameron was seen to beckon wildly as she stood waist-deep in the water, looking down. Bessie saw her and, tumbling into the water like a very energetic turtle, swam rapidly towards her.

"I've dropped a bracelet," said Miss Cameron as she drew near. "Will you find me a long stick? I will keep my eye on it so that it doesn't get washed away."

"I'll dive for it," answered Bessie.

"Quick, then! The sand is covering it already."

"I'll get it!" And down went Bessie, to come up with a handful of pebbles but no bracelet.

"It's gone. Never mind—my fault," said Miss Cameron.

"No it isn't. I'll have it, if I stay down all night!" And with one long breath Bessie dived again, leaving nothing but a pair of agitated feet to be seen.

In a moment Bessie came up choking and spluttering, but without the bracelet.

"Never mind," she gasped. "I'm going to get it, if I have to go to Liverpool for it. Now then!" And down she went again quite out of sight, groping like a lobster on the bottom of the sea.

N<sup>o</sup> 0477

**Lower Certificate**

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PASSAGE B  
**DEC. 1955**

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JUNE 1955UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

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## READING PASSAGE B

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

"There aren't any letters," Smith's wife informed him. "Shall I bring you some tea?"

Smith raised his head from the pillow and opened and closed his eyes quickly about a dozen times.

"Tea?" repeated Mrs. Smith.

"What? Oh, yes, please. What's the time?"

Mrs. Smith peered at her watch.

"Oh, dear," she cried, "it's twenty to seven. You will have to hurry if you're going to catch your train."

"What sort of day is it?"

"Lovely. I think it will be hot."

"It would be," said Smith resentfully. "I'm not going to work in that stuffy old office."

He turned over, yawned, and closed his eyes.

"No you don't," cried Mrs. Smith, flinging open the curtains. "You've been late too many times already, and the next time may be the last."

Mr. Smith made no reply. He was already sound asleep again.

Mrs. Smith was about to shake him when she suddenly remembered, and laughed aloud.

"What's the matter?" grunted Smith, disturbed by the noise.

"Why, Ned, you have the day off!"

"What!" he cried, "and me wasting my time in bed like this!"

He jumped out immediately.

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## READING PASSAGE B

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

With considerable misgiving I approached the under-manager, a sturdy man with bushy eyebrows and a beard, and asked him, as respectfully as I knew how, if he could find me a job in the factory. He looked me up and down for a moment, then in a voice that was not unkindly he asked:

"How old are you?"

"Sixteen to-day," I replied.

"Come with me." He led the way into a dusty room.

"Sign your name there." He indicated a large book open on the table and handed me a pen. As I carefully scrawled my name in the book, he took a small notebook from his pocket, scribbled a few lines, tore out the page and handed it to me.

"Give that in at the office to-morrow before six," he said. And that was the simple process by which I entered the ranks of wage-earners.

I stepped proudly out into the dust of the yard. Then away I went as fast as my legs would carry me to break the news at home.

"Mother," I shouted excitedly, "tell Dad to wake me at five o'clock in the morning. I begin work to-morrow!"

**Lower Certificate**READING  
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**JUNE 1954**UNIVERSITY OF CAMBRIDGE  
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Handwritten notes on a lined page, mostly illegible due to fading. A paperclip is attached to the top edge. Two punch holes are visible on the right side.

Cambridge  
Heard  
June (3 copies)  
Dec 1955 (2 copies)  
June 1955 (2 copies)



Nº 0864

**Lower Certificate**

READING  
PASSAGE C  
**JUNE 1954**

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

READING PASSAGE C

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

On the cross-Channel steamer, coming home, Donald fell into conversation with a most interesting man. He was an engineer, and he had travelled all over the world.

"Another journey over," he said, as they watched the white cliffs coming into view on the English side. Then he added unexpectedly:

"I'm getting too old for journeys. Thirty-five years I've been travelling the world, and there's only one place I want to see, and that's home. When I was younger it was different. Take my advice and travel while you're young. If you get a chance to go to Honolulu when you're twenty-five, take it. I did, and never regretted it. But you won't be half so keen to go back at fifty-five, as I had to."

"Have you ever thought of asking your firm to let you stay at home?"

"Not with two children to educate," he said. "I need the foreign pay and allowances to put them through College. One of them wants to be an architect and the other a chemist. I should like them both to qualify, if I can manage to keep on paying the fees."

**Lower Certificate**

READING  
PASSAGE C  
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Nº 0477

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DEC. 1955

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

READING PASSAGE C

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

As the porter pushed the truck containing my baggage on to the luggage scales, he announced it as a "puppet theatre." The luggage official stared, bewildered. He searched feverishly through his books for information.

"I don't know how to charge for *that*," he said. "We haven't got *that* on the books. Here, come along with me a minute," and he led the way to a higher official in the back office.

There was a grave consultation which ended in the higher official coming out to inspect this impudent baggage which was not on the books. He stood there pondering a moment, and then his face brightened.

"Excuse me, sir, but didn't I see something about this in the paper the other day?"

"Well, very likely," I replied. "I am a bit of a curiosity."

"Ah, now, that is interesting. I was very interested in that. Just the sort of life I should like to lead. And so you are off on the road again, are you? That's the thing! Get into the country! Well, we aren't used to puppet theatres here, but we'll put this on a pram ticket."

Nº 0476

**Lower Certificate**

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Nº 1304

Lower Certificate

READING  
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JUNE 1955

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

READING PASSAGE C

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

Once inside the Flower Show, David made straight for the bee-keeping tent, where a demonstration was being given. Jean stayed with him, although she was dying for a cup of tea.

The lecturer was calmly sitting down among a perfect cloud of bees, giving a demonstration of the correct method of handling frames of honeycomb.

"Ooh!" said Jean. "What a nerve!"

A stout country-woman who was standing beside her laughed and said:

"I had a swarm in my house once. They flew in through the bedroom window and pitched right inside my Sunday hat. I never found them till I went to bed at night. I'd left my hat hanging up instead of putting it away. It was still fairly light when I went up to bed, so I could see there was something wrong with the hat. I went and lifted it off the peg, and it was so heavy that I dropped it."

"Were you stung?" asked David.

"Stung? I was stung so much that I was nearly double the size I am now."

As David glanced at her figure, he found it hard to keep a straight face.

Nº 0923

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READING  
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“Ooh!” said Jean. “What a nerve!”

A stout country-woman who was standing beside her laughed and said:

“I had a swarm in my house once. They flew in through the bedroom window and pitched right inside my Sunday hat. I never found them till I went to bed at night. I’d left my hat hanging up instead of putting it away. It was still fairly light when I went up to bed, so I could see there was something wrong with the hat. I went and lifted it off the peg, and it was so heavy that I dropped it.”

“Were you stung?” asked David.

“Stung? I was stung so much that I was nearly double the size I am now.”

As David glanced at her figure, he found it hard to keep a straight face.

*[Faint, illegible handwriting on lined paper]*

*duplicate*

June 1955	(3 copies)
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June 1955	(4 copies)



**Lower Certificate**READING  
PASSAGE D  
**JUNE 1954**UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE**Lower Certificate in English**

## READING PASSAGE D

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

The sun was shining quite brightly when Mrs Grant caught the bus into town, but before long it came on to rain. When the bus stopped in the market-place Mrs Grant stood up and, as she did so, she automatically picked up the umbrella which was hanging on the back of the seat in front of her. A cold voice said loudly:

“That is mine, Madam.”

Only then did Mrs Grant remember that she had come out without her umbrella. She blushed furiously, whilst the lady who owned the umbrella smiled triumphantly.

When she had left the bus, Mrs Grant made straight for a shop where she could buy an umbrella. She bought herself a very handsome one, and then decided to buy another as a present for her daughter.

In the afternoon she boarded her homeward bus with the two umbrellas under her arm, and sat down. Only then did she see that, by an extraordinary coincidence, she was sitting next to the woman who had caused her so much confusion that morning. The latter looked at her, then at her umbrellas, and said:

“You’ve had quite a good day, I see!”

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Nº 0476

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READING  
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LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

READING PASSAGE D

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The boat set off in the late afternoon, with Mr Carter and his luggage aboard. They headed due east. In the distance was a rocky island which Mr Carter recognised.

Night fell and the boatman lit his lamps. Suddenly there was a slight jar, and the boat began to vibrate strangely. The engine rattled, they slackened speed until they were doing little more than crawl along, and Mr Carter noticed that they seemed to be heading for the island.

"Where are we going?" he asked the boatman.

The man pointed to the island.

"Surely you're not going there? Why? What's the matter?"

"I can't get to Pepper Bay," he said.

"But you must. I've paid you to take me there."

"One of the blades of the propeller has broken off. We can get as far as that island. We shall have to stay the night there and put on a new propeller in the morning when the tide's out."

"But I must get to Pepper Bay tonight."

The sailor shrugged his shoulders. "We're going to that island," he said, "and if you don't like it you can get out and swim."

Nº 0477

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READING PASSAGE D

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Mrs. Paxton was cutting some lilies for her sitting room and some roses for her husband's desk in the library. The air was freshening after a stuffy July day, and the water in the harbour was turning from gold to silver.

"There's going to be a wonderful sunset to-night, Susan," she said, looking in at the kitchen window as she passed it.

"I can't come out looking at sunsets when I'm in the middle of washing up," protested Susan.

"It will be gone before you see it, then. Some new kind of pest has started to eat the rose-bushes," she went on. "I must spray them to-morrow. I'd like to do it to-night. This is an ideal evening for working in the garden. You can almost see the things growing."

Susan, who was a townswoman, sniffed. "I can't think why people are so fond of gardening. It seems to be nothing but pests and spraying."

"Yes, I suppose it must seem like that to you. But a perfect garden would be dull. Pottering about is half the joy of gardening. I wouldn't give it up for anything."

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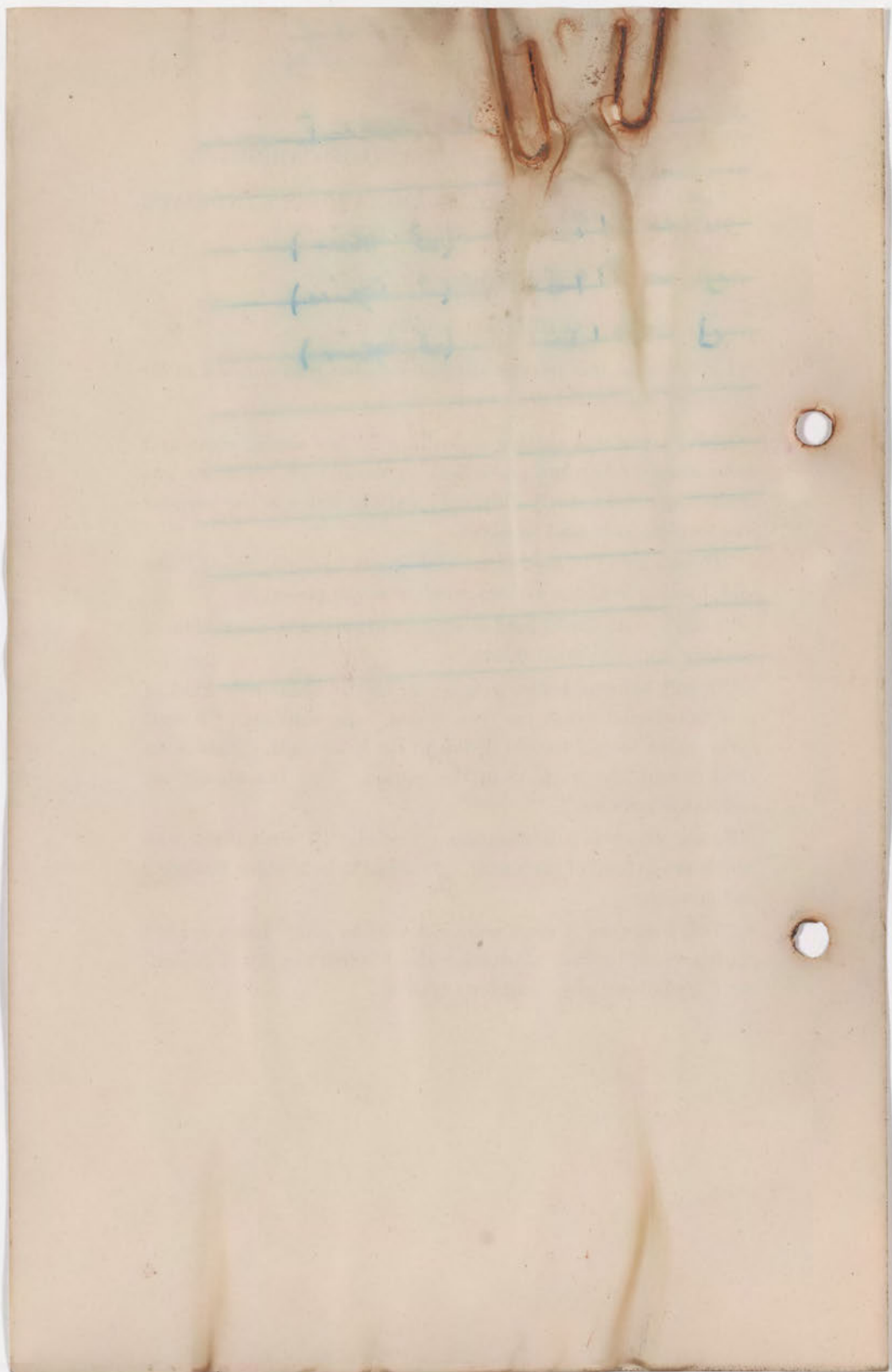
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## Lower Certificate

READING  
PASSAGE E  
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LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

## READING PASSAGE E

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When Fred was fourteen, his greatest hero was a cousin of his called Antony, who was a lieutenant in the Navy. His admiration for his sailor cousin found expression in the building of model yachts. One day he was busily engaged in hollowing out the hull of a schooner when his father surprised him by stealing up behind him and giving him a resounding clap on the shoulder.

"Hurrah, Fred!" he cried, waving a telegram.

"Good news, Daddy? Give it to me. Let me read it myself."

But Mr Watson held the telegram high in the air, so that Fred couldn't reach it.

"Can you guess what's in it?"

"I know! It's to say that Antony's coming on leave to-day."

"You're right this time."

"Oh, I am so glad. But don't go away, Daddy. Let me take the news to mother and Margaret."

Fred snatched the telegram from his father's hand; but before he left the workshop he bundled all his model yachts and schooners into a box.

"What *are* you doing?"

"Well, Daddy, I don't want Antony to see these. He's a sailor, and he'd laugh at them, you know."

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LOCAL EXAMINATIONS SYNDICATE

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READING PASSAGE E

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The following Saturday Janet and her mother shut themselves in the kitchen and told the boys that they mustn't come through or even peep in at the window. After nearly an hour had passed Janet, looking more excited than usual, joined them in the garden; but she would not tell them what she had been doing, except that she hoped to have a surprise for them when they came back from their football match.

At half-past four the boys returned home, and found Janet waiting for them with a tray of six apples covered with golden-brown toffee. There was a stick in each apple to hold it by.

"Did you make these, Janet?" exclaimed John. Janet nodded.

"Won't you have one? And you, Harry?"

The tray was soon emptied.

"Are they good, John?" asked Harry, who had, as usual, chosen the biggest, a monster with a particularly thick coating of sticky-looking toffee.

"Yes, very," answered John, attacking his apple again. Harry took an enormous bite, then spluttered and choked and spat his apple on the floor.

"Oh! An onion," he cried. "Where's Janet?"

But Janet was nowhere to be seen.

N<sup>o</sup> 0476

**Lower Certificate**

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## READING PASSAGE E

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The turnips were the pride of Mr. Robinson's garden. They grew steadily and stoutly, and all through the dry summer he watered them regularly.

At last the leaves began to turn yellow, and the enormous roots refused to swell any more, so Mr. Robinson decided to dig them up. The family all stood round to watch, and Mrs. Briggs from next door looked over the garden fence.

Mr. Robinson put his fork under the largest turnip, and called on John to pull gently on the leaves. John did so. There was a faint plop!, a nasty smell, and John fell over backwards, still clutching a handful of leaves. Inside, the turnip was brown and rotten. And so was the next—and the next.

At this point Mrs. Briggs made a queer, choking noise and turned away from the fence. Mrs. Robinson hurried into the house to get tea; and only the two children were left with Mr. Robinson. Mr. Robinson stuck his fork into the ground and scratched his head, a little thoughtfully.

"Never mind, Daddy," said Sally, slipping her hand into his, "they must have been the biggest turnips that anybody ever grew!"

Nº 0923

Lower Certificate

READING  
PASSAGE E

JUNE 1955

UNIVERSITY OF CAMBRIDGE  
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Lower Certificate in English

READING PASSAGE E

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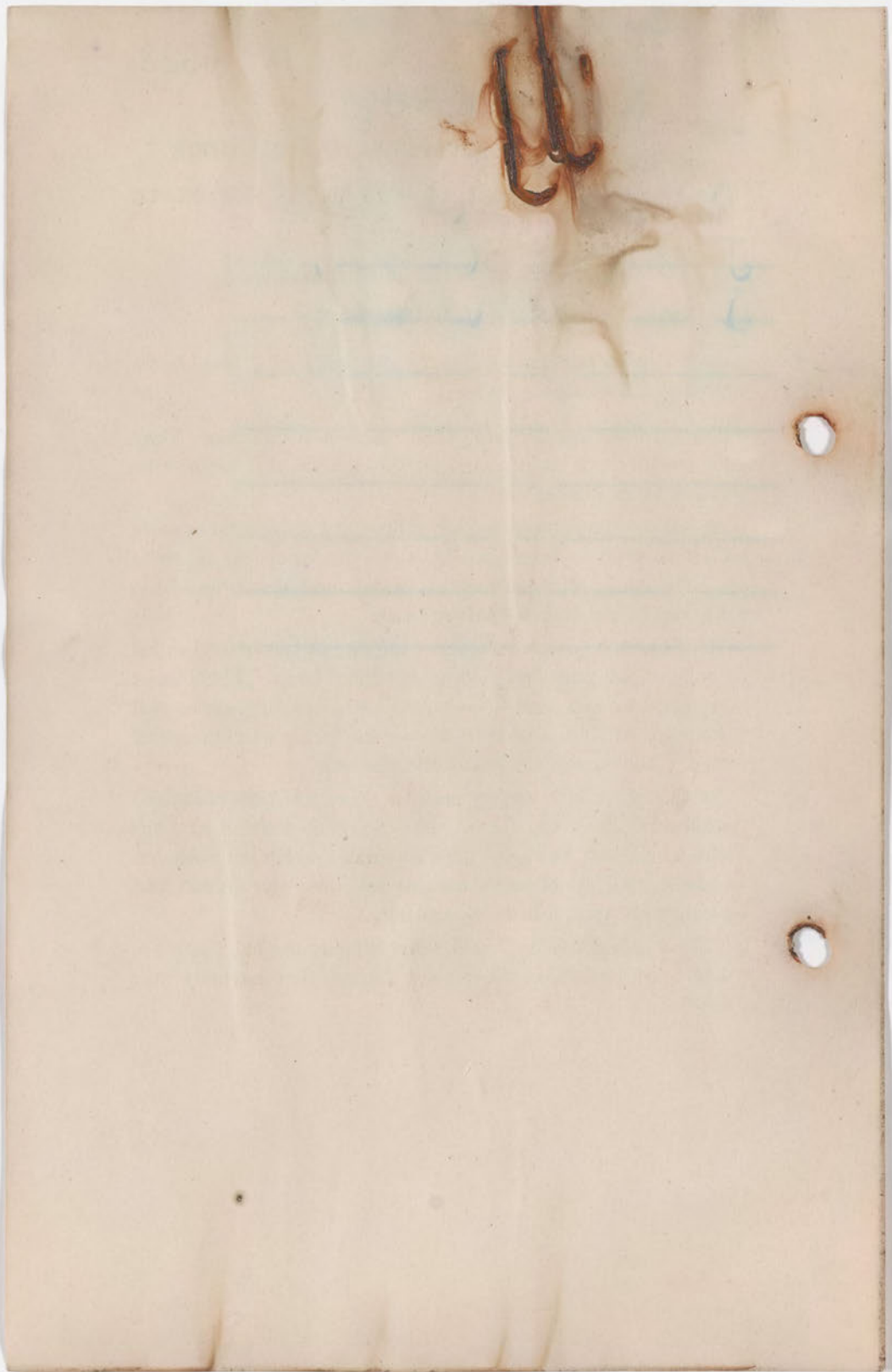
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## Lower Certificate

READING  
PASSAGE F

JUNE 1954

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

## READING PASSAGE F

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

That morning Spot was very quiet at breakfast, and when Dick put on his smart new cap he made no fuss. He knew he was not going—at least, not yet.

“Goodbye,” said Dick. “Goodbye, Spot.”

Spot wagged his tail, but he did not even go to the door.

“Look at him!” said Mrs Duffy, “he knows, bless him. He’s as good as gold.”

If Mrs Duffy had known what Spot was thinking about just then, she would not have been so sure. Spot waited. He did not go near the door, for he did not want her to guess his plan and shut him in the kitchen. He let the butcher go, and the greengrocer. Then the baker came.

“I must just see what bread I have in the pan,” said Mrs Duffy, and off she went.

So did Spot. He was out of the gate and down the road like a flash of lightning, hot on the trail of Dick.

“Your dog has gone,” said the baker.

“Never mind,” said Mrs Duffy. “He’s only gone to the gate.”

A moment later, however, she knew her mistake. Spot was nowhere to be seen.

**Lower Certificate**READING  
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READING PASSAGE F

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The lorry had trembled! It was no trick of the imagination. And now it was sliding slowly off down the hill towards the station. Brian first realised the danger, and, with a shout to his brother, dived for the cab. At his shout Pat turned round from the shop and clambered on to the back of the lorry.

Brian, at the wheel, had straightened the lorry's head and was now pressing continuously on the hooter, scattering the people to right and left. The vehicle, travelling quickly now, bore down on the busy junction at the foot of the hill. As Brian gazed anxiously ahead, he became aware of a frenzied tapping on the window at the back of the cab. Glancing round, he saw Pat's white face pressed against the glass and heard his voice screaming, "The hand-brake! Pull the hand-brake!" Letting go the steering wheel, Brian pulled with all his strength on the handle. The lorry swerved across the road, but its speed checked. It mounted the pavement, but the stout brakes held firm, and brought it to a standstill with its front bumper within an inch of John Dixon's shop door.



N<sup>o</sup> 0475

Lower Certificate

READING  
PASSAGE F

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UNIVERSITY OF CAMBRIDGE

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PASSAGE F

DEC. 1955

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

READING PASSAGE F

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

The lorry had trembled! It was no trick of the imagination. And now it was sliding slowly off down the hill towards the station. Brian first realised the danger, and, with a shout to his brother, dived for the cab. At his shout Pat turned round from the shop and clambered on to the back of the lorry.

Brian, at the wheel, had straightened the lorry's head and was now pressing continuously on the hooter, scattering the people to right and left. The vehicle, travelling quickly now, bore down on the busy junction at the foot of the hill. As Brian gazed anxiously ahead, he became aware of a frenzied tapping on the window at the back of the cab. Glancing round, he saw Pat's white face pressed against the glass and heard his voice screaming, "The hand-brake! Pull the hand-brake!" Letting go the steering wheel, Brian pulled with all his strength on the handle. The lorry swerved across the road, but its speed checked. It mounted the pavement, but the stout brakes held firm, and brought it to a standstill with its front bumper within an inch of John Dixon's shop door.

Nº 1304

Lower Certificate

READING

PASSAGE F

JUNE 1955

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

READING PASSAGE F

*Look through this passage silently and then read it aloud to the Examiner when asked to do so.*

It seems odd to say that a spider's web is as strong as steel, but it is, and I saw something once which proved both the strength of the thread and the wonderful power of the spider.

I was paddling down a Canadian lake, and at a point where the lake was perhaps a quarter of a mile wide I saw swinging in the sunlight before me a single spider's thread. It swayed backward and forward like a loose wire, but it was plainly fastened somewhere high up at both ends, and as I watched, the thread began to draw up and tighten until it stretched like a tight wire across the water. The spider must have fastened the thread securely on one side of the lake. Then she had swum across to the other side, spinning the thread behind her, and after climbing up the other bank she had carefully drawn the thread up until it was tight.

When one thinks how small a spider is and what a hard pull it must have taken to draw up a thread a quarter of a mile long, it seems almost impossible.

Nº 0923

Lower Certificate

READING  
PASSAGE F

JUNE 1955

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

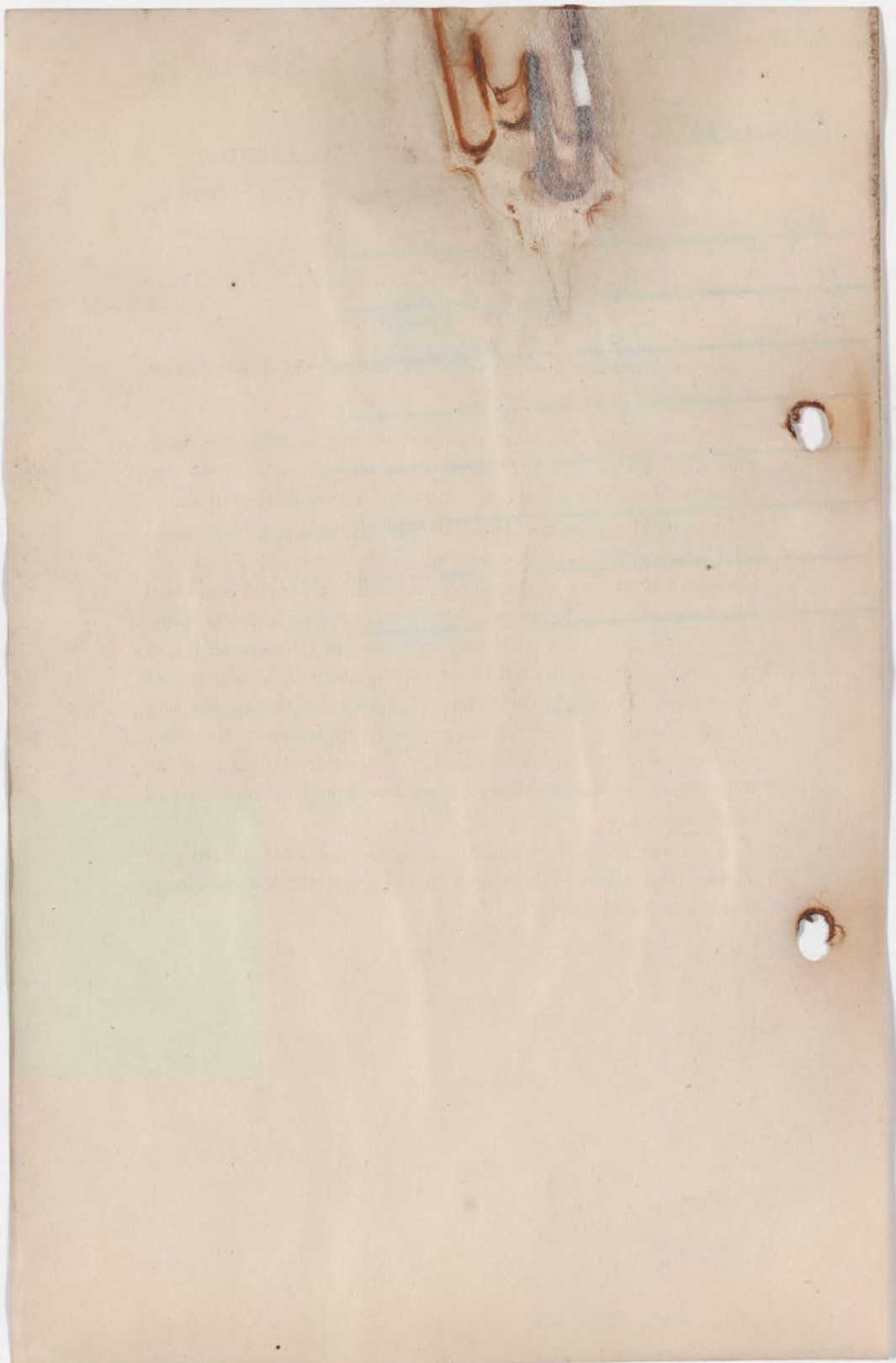
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**Lower Certificate**

TRANSLATION  
FROM AND  
INTO ARABIC

UNIVERSITY OF CAMBRIDGE

*Tuesday*

**22 JUNE 1954** LOCAL EXAMINATIONS SYNDICATE

Morning

2½ hours

**Lower Certificate in English**

TRANSLATION FROM AND INTO ARABIC

*(Two and a half hours)*

I. Translate into ARABIC:

I arrived more tired and hungry than ever, only to be told at the inn that they had no accommodation for me but that the village baker might be able to put me up, as he had a spare-room in his house. So to the baker's I went and found it a queer, tumbledown old place, standing a little back from the street.

At my knock the baker himself came out—a mild-looking, flabby-faced man, with his mouth full, in a very loose suit of bluish pyjama-like garments. He listened to my story, swallowing his mouthful, then cast his eyes down and rubbed his chin, which had a small tuft of hairs growing on it, and finally said: "I don't know. I must ask my wife. But come in and have a cup of tea—we're just having a cup ourselves, and perhaps you'd like one."

I should have liked a dozen cups and a great many slices of bread and butter, if there was nothing else more substantial to be had. However, I only said: "Thank you," and followed him to where his wife was seated behind the teapot. Imagine my surprise when I found that besides tea there was a hot meal on the table—a ham, a roast fowl, mashed potatoes, cabbage, a rice pudding and stewed fruit.

"You call this a cup of tea!" I exclaimed delightedly.

W. H. HUDSON (adapted).

[TURN OVER

## 2. Translate into ENGLISH:

وكانت فتاة من فتيات الدار قد نهضت مع الصبح قبل أن تستيقظ الأسرة من نومها، فبدأت بما تعودت أن تبدأ به مع الصبح من كل يوم وأخذت تكس فناء الدار وترده إلى هيئته التي ينبغي أن يكون عليها، فتصفف الكراسي في أماكنها، وتنفض التراب عن تلك الدكة الطويلة التي كانت تمتد في صدر الفناء، وتمهئها لمجلس سيدنا حين يقبل مطلع الشمس ليقراً « الصورة » ويشرب القهوة ويتحدث إليها حديثاً يطوله حيناً ويقصره حيناً حسب ما يكون عليه من عجلة أو ريث، وإن الفتاة لفي ذلك وإذا بالباب يطرق طرقة خفيفاً، فإذا فتحته رأت قاسماً حزينا تظهر على وجهه الشاحب آية الرضا والأمل ومن وراءه غلام يحمل عنه عبئه، فحيا قاسم وحيا معه الغلام، ثم دخل الرجلان صامتين ووضعاً صيدهما العظيم على هذه الدكة في صدر الفناء، وقال قاسم في صوته الخافت المريض: ما أشك في أن السيدة ستسر بهذا الصيد، وهم صاحبه أن ينصرف، ولكن الفتاة ألفت في يده شيئاً قبله راضياً وولى محبوراً، وهم قاسم أن ينصرف ولكن الفتاة أشارت إليه أن أقم، ثم غابت عنه لحظة وعادت إليه بقليل مما يؤكل ويقدم من القهوة فأكل وشرب ودعا.

Tāhā Ḥusayn: *Al-Mu'adhdhabūna fi l-'ard.*

## Lower Certificate

TRANSLATION

FROM AND

INTO ARABIC

Tuesday

21 JUNE 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

Please write very clearly and state at the head of your answers the name of the language (other than English) used.

Do not translate a word or phrase in more than one way in the hope that the examiner will choose the best rendering.

## 1. Translate into ARABIC:

At half-past three in the afternoon, with the strong sunlight tracing the pattern of the window panes on the polished floor of the Colonel's library, giving the room some of the sleepy warmth of the garden, five men gathered round the big desk on which an historic document was spread. They were the Colonel himself, his son Valentine, Mr Campion and the American Professor, and a distinguished stranger whose name was known only to the Colonel.

Inside the house everything was quiet. Outside, birds were singing and the scent of flowers in the garden drifted in through the open windows.

The distinguished stranger, a tall, grey-headed man with cold blue eyes and a curious dry little voice, coughed before he spoke.

"There's really no need for me to read all this through, Colonel," he said. "After all, we've read it through together several times before. It makes one feel old. Every reading means another ten years gone."

He sighed, and smiled shyly at Campion and the Professor, who were standing side by side. The Professor was alert and deeply interested, but his companion stood fingering his tie awkwardly, a faint smile on his mild, friendly face. Valentine stood at his father's elbow, his young face deadly serious, a distinct hint of nervousness in his manner.

[TURN OVER

"I think this one passage will be sufficient," the stranger continued, placing a finger at the bottom of the document. He cleared his throat again and began to read huskily and without expression.

When he had finished reading, he rolled up the document and returned it to the Colonel, who locked it up in a drawer of his desk.

MARGERY ALLINGHAM (adapted).

2. Translate into ENGLISH:

واستغربت كثرة الأبواب للبيت الواحد وتعدد السلام، فقد تكون صاعدا في وديعة الله وحفظه، وإذا أمامك سلمان يذهب كل منهما في ناحية فلا تدري أيهما تأخذ : هذا أو ذاك؟ وخطر لي في أول الأمر أن سلما يؤدي إلى حجرات الرجال، وأن الآخر يفضي إلى مساكن السيدات، ولكن خطر لي أيضا أن الإكثار من السلام المضلة والأبواب المحيرة قد يكون أثرا من أيام القلق وعدم الاطمئنان، أيام كان الناس يسهجمون في دورهم على غرة، ويكر عليهم المعتدون وهم آمنون في سربهم فلا يبعد أن يكون الناس قد آثروا في الأصل هذا الطراز المحير ليتسنى لهم أن يجدوا لهم ولد ويهم مخرجا أو مهربا إذا اقتحم عليهم الدار عدو، أو لعل الخاطر الأول هو الأصح فما أدري ولا وجدت من يدري، ومهما يكن من ذلك فإن الدار هناك داران على الحقيقة، وهي تبتدئ واحدة ثم تتشعب وتتعدد، ولا بد لهذا من حكمة خفيت علي، أما السلام فلا حكمة لارتفاع درجاتها إلى هذا الحد المرهق إلا أن تكون حكمة التزهيد في مكابذتها مرة ثانية، وما أكثر ما كان يخيل إلي، إذ نزل من أحد البيوت، أننا نهبط من سلم غير الذي صعدنا عليه، حتى خطر لي أن أرسم بالقلم علامات على الجدران للتثبت وقطع الشك باليقين .

**Lower Certificate**

TRANSLATION  
FROM AND  
INTO ARABIC

Tuesday  
21 JUNE 1955

Morning  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

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**Lower Certificate**

TRANSLATION

FROM AND

INTO ARABIC

Tuesday

21 JUNE 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

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(Two and a half hours)

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**Lower Certificate**

TRANSLATION

FROM AND

INTO ARABIC

Tuesday

21 JUNE 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

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Lower Certificate

TRANSLATION

FROM AND

INTO ARABIC

Tuesday

21 JUNE 1955

Morning

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

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MARGERY ALLINGHAM (adapted).

2. Translate into ENGLISH:

واستغربت كثرة الأبواب للبيت الواحد وتعدد السلالم، فقد تكون صاعدا في وديعة الله وحفظه، وإذا أمامك سلمان يذهب كل منهما في ناحية فلا تدري أيهما تأخذ: هذا أو ذاك؟ وخطر لي في أول الأمر أن سلما يؤدي إلى حجرات الرجال، وأن الآخر يفضي إلى مساكن السيدات، ولكن خطر لي أيضا أن الإكثار من السلالم المضلة والأبواب المحيرة قد يكون أثرا من أيام القلق وعدم الاطمئنان، أيام كان الناس يسهجون في دورهم على غرة، ويكر عليهم المعتدون وهم آمنون في سربهم فلا يبعد أن يكون الناس قد آثروا في الأصل هذا الطراز المحير ليتسنى لهم أن يجدوا لهم ولد ويهم مخرجا أو مهربا إذا اقتحم عليهم الدار عدو، أو لعل الخاطر الأول هو الأصح فما أدري ولا وجدت من يدري، ومهما يكن من ذلك فإن الدار هناك داران على الحقيقة، وهي تبتدئ واحدة ثم تتشعب وتتعدد، ولا بد لهذا من حكمة خفيت علي، أما السلالم فلا حكمة لارتفاع درجاتها إلى هذا الحد المرهق إلا أن تكون حكمة التزهيد في مكابذتها مرة ثانية، وما أكثر ما كان يخيل إلي، إذ نزل من أحد البيوت، أننا نهبط من سلم غير الذي صعدنا عليه، حتى خطر لي أن أرسم بالقلم علامات على الجدران للتثبت وقطع الشك باليقين.

Lower Certificate

TRANSLATION  
FROM AND  
INTO ARABIC  
*Tuesday*

13 DEC. 1955

*Morning*

2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

*Please write very clearly and state at the head of your answers the name of the language (other than English) used.*

*Do not translate a word or phrase in more than one way in the hope that the examiner will choose the best rendering.*

1. Translate into ARABIC:

Panting, slipping, with aching sides, but terror at his heels, Sam Buzza tore up the hill. The suitcase was monstrously heavy, and more than once he almost dropped it; but it was tightly packed, apparently, for nothing shook inside it. Only the handle creaked in his grasp.

He gained the top, shifted the load to his left hand, and raced down the other side of the hill. How he reached the bottom he cannot clearly call to mind; but he dug his heels well into the turf, and arrived without a fall. At the foot of the slope a wire fence had to be crossed; next the railway line; then, across the embankment, another fence, which tore off a shred of his clothing. A meadow followed, and then he dropped over the hedge into the high road.

Here he stopped, set down the suitcase, and looked about him. All was quiet. So vivid was the moonlight that looking down the road he could see every bush, every tuft of grass. Not a soul was in sight.

The night was warm, and his flight had made him feel intolerably hot. He felt for his handkerchief to wipe his brow, but snatched his hand away.

His coat was burning. Like a fool he had forgotten to blow out the lantern, and an abominable smell of oil and burning cloth now arose from the pocket in which he had hidden it. He stifled the fire, pulled out the lantern, and looked at his watch.

It was twenty minutes to eleven. He had plenty of time, so he extinguished the lantern, lifted the suitcase, and began to walk up the road at a leisurely pace.

SIR ARTHUR QUILLER-COUCH (adapted).

[TURN OVER

## 2. Translate into ENGLISH:

إن كثرة ارتحال القبا ئل وغزواتها العدة ترك عند الناس فكرة خاطئة عن عدم وجود مدن وبلاد ومناطق زراعية في جزيرة العرب، وكثير من الناس من لا يعلم بوجود مدن سوى مكة والمدينة وجدة وصنعاء، ولكن المناطق الساحلية في الجنوب الشرقي والجنوب الغربي من الجزيرة أراض زراعية أهلة بالقري والمدن، والأهالي يشتغلون بالزراعة والتجارة، ويوجد علاوة على ذلك مستعمرات أو واحات عديدة في وسط الجزيرة، يتجاوز سكان الواحدة منها سبعة آلاف نسمة، وهذا عدا الأماكن الأخرى المبعثرة المملوءة بالسكان، ومما لاشك فيه أن حياة الحضر في داخل الجزيرة متأثرة إلى درجة ما بحياة البدو الرحل لاتصال الفريقين في كثير من المرافق، فإن الفريقين كثيرا ما يتصلان بالمصاهرة والتجارة، والحضر تختلف طبعا عنهم باختلاف المناطق التي يعيشون فيها وظروف الحياة التي تحيط بهم، فأهل حائل أقرب مظهرها إلى البدو وأهل مكة والمدينة واليمن العالية أبعد مظهرها عن البدو من البلاد الأخرى العربية، وأهل القصيم ألين عريكة من أهل العارض لأنهم كثيرو الأسفار وكثيرو الاختلاط والتعامل مع البلاد الأخرى كالشام وفلسطين ومصر، ولذا فترى موظفي ديوان الملك المكلفين بالمقابلات والتشريفات من أهل القصيم أو حائل، وأهل الرياض أرق بكثير من أهل الدواسر الذين لم يفارقوا بلادهم، ولم يعرفوا شيئا عن أحوال العالم الخارجي.

## Lower Certificate

TRANSLATION  
FROM AND  
INTO ARABIC

Tuesday  
13 DEC. 1955  
Morning  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

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Here he stopped, set down the suitcase, and looked about him. All was quiet. So vivid was the moonlight that looking down the road he could see every bush, every tuft of grass. Not a soul was in sight.

The night was warm, and his flight had made him feel intolerably hot. He felt for his handkerchief to wipe his brow, but snatched his hand away.

His coat was burning. Like a fool he had forgotten to blow out the lantern, and an abominable smell of oil and burning cloth now arose from the pocket in which he had hidden it. He stifled the fire, pulled out the lantern, and looked at his watch.

It was twenty minutes to eleven. He had plenty of time, so he extinguished the lantern, lifted the suitcase, and began to walk up the road at a leisurely pace.

SIR ARTHUR QUILLER-BOUCH (adapted).

[TURN OVER

2. Translate into ENGLISH.

إن كثرة ارتحال القبا ئل وغزواتهما العدة ترك عند الناس فكرة خاطئة عن عدم وجود مدن وبلاد ومناطق زراعية في جزيرة العرب، وكثير من الناس من لا يعلم بوجود مدن سوى مكة والمدينة وجدة وصنعا، ولكن المناطق الساحلية في الجنوب الشرقي والجنوب الغربي من الجزيرة أراض زراعية أهلة بالقري والمدن، والأهالي يشتغلون بالزراعة والتجارة، ويوجد علاوة على ذلك مستعمرات أو واحات عديدة في وسط الجزيرة، يتجاوز سكان الواحدة منها سبعة آلاف نسمة، وهذا عدا الأماكن الأخرى المبعثرة المملوءة بالسكان، ومما لاشك فيه أن حياة الحضر في داخل الجزيرة متأثرة إلى درجة ما بحياة البدو الرحل لاتصال الفريقين في كثير من المرافق، فإن الفريقين كثيرا ما يتصلان بالمصاهرة والتجارة، والحضر تختلف طباهم باختلاف المناطق التي يعيشون فيها وظروف الحياة التي تحيط بهم، فأهل حائل أقرب مظهرا إلى البدوة وأهل مكة والمدينة واليمن العالية أبعد مظهرا عن البدوة من البلاد الأخرى العربية، وأهل القصيم ألين عريكة من أهل العارض لأنهم كثيرو الأسفار وكثيرو الاختلاط والتعامل مع البلاد الأخرى كالشام وفلسطين ومصر، ولذا فترى موظفي ديوان الملك المكلفين بالمقابلات والتشريفات من أهل القصيم أو حائل، وأهل الرياض أرق بكثير من أهل الدواسر الذين لم يفارقوا بلادهم، ولم يعرفوا شيئا عن أحوال العالم الخارج.

Lower Certificate

TRANSLATION  
FROM AND  
INTO ARABIC  
Tuesday

13 DEC. 1955

Morning  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

TRANSLATION FROM AND INTO ARABIC

(Two and a half hours)

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It was twenty minutes to eleven. He had plenty of time, so he extinguished the lantern, lifted the suitcase, and began to walk up the road at a leisurely pace.

SIR ARTHUR QUILLER-COUCH (adapted).

[TURN OVER

2. Translate into ENGLISH.

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**Lower Certificate**

TRANSLATION  
FROM AND  
INTO FRENCH  
*Tuesday*

**13 DEC. 1955**

*Morning*  
*2½ hours*

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

TRANSLATION FROM AND INTO FRENCH

*(Two and a half hours)*

*Please write very clearly and state at the head of your answers the name of the language (other than English) used.*

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His coat was burning. Like a fool he had forgotten to blow out the lantern, and an abominable smell of oil and burning cloth

[TURN OVER

2  
now arose from the pocket in which he had hidden it. He stifled the fire, pulled out the lantern, and looked at his watch.

It was twenty minutes to eleven. He had plenty of time, so he extinguished the lantern, lifted the suitcase, and began to walk up the road at a leisurely pace.

SIR ARTHUR QUILLER-COUCH (adapted).

2. Translate into ENGLISH:

On le voit partout, autant dans les quartiers riches que dans les quartiers pauvres. Dans les quartiers fréquentés par les étrangers il vend des crayons, des lacets, des plans, des vues de Paris. Il ne vous importune pas trop. Toutefois ce camelot-là manque de pittoresque.

Je lui préfère celui qui, planté derrière une table pliante, débite son boniment à la foule amusée. Il sait attirer le public et le tenir. Passant du comique au sérieux, il sème son boniment d'allusions à la politique. En vous offrant un canif à trente-six lames il vous assure qu'il en a vendu un la veille au Président de la République.

Et il est généreux ! Pour le prix modeste qu'il vous demande pour son canif il vous donne—notez bien, il donne !—six lames de rasoir, un porte-plume à réservoir et un fume-cigarette en véritable imitation d'ivoire.

Comment résister à cette avalanche de cadeaux ?

Mais je crois bien que mon camelot préféré est celui qui vend des cravates. On le rencontre dans les quartiers populaires, celui-là. Son étalage se compose tout bonnement d'un parapluie ouvert et renversé. Sur l'étoffe du parapluie sont étalées des cravates de toutes couleurs, en soie artificielle. C'est pratique, car son étalage prend le minimum de place.

MARC CEPPI (adapted).

**Lower Certificate**

TRANSLATION  
FROM AND  
INTO FRENCH  
*Tuesday*

**13 DEC. 1955**

*Morning*  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

TRANSLATION FROM AND INTO FRENCH

*(Two and a half hours)*

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[TURN OVER



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MARC CEPPI (adapted).

**Lower Certificate**

TRANSLATION  
FROM AND  
INTO FRENCH

*Tuesday*  
21 JUNE 1955

Morning  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

TRANSLATION FROM AND INTO FRENCH

*(Two and a half hours)*

*Please write very clearly and state at the head of your answers the name of the language (other than English) used.*

*Do not translate a word or phrase in more than one way in the hope that the examiner will choose the best rendering.*

1. Translate into FRENCH:

At half-past three in the afternoon, with the strong sunlight tracing the pattern of the window panes on the polished floor of the Colonel's library, giving the room some of the sleepy warmth of the garden, five men gathered round the big desk on which an historic document was spread. They were the Colonel himself, his son Valentine, Mr Champion and the American Professor, and a distinguished stranger whose name was known only to the Colonel.

Inside the house everything was quiet. Outside, birds were singing and the scent of flowers in the garden drifted in through the open windows.

The distinguished stranger, a tall, grey-headed man with cold blue eyes and a curious dry little voice, coughed before he spoke.

"There's really no need for me to read all this through, Colonel," he said. "After all, we've read it through together several times before. It makes one feel old. Every reading means another ten years gone."

He sighed, and smiled shyly at Champion and the Professor, who were standing side by side. The Professor was alert and deeply interested, but his companion stood fingering his tie awkwardly, a faint smile on his mild, friendly face. Valentine

[TURN OVER

stood at his father's elbow, his young face deadly serious, a distinct hint of nervousness in his manner.

"I think this one passage will be sufficient," the stranger continued, placing a finger at the bottom of the document. He cleared his throat again and began to read huskily and without expression.

When he had finished reading, he rolled up the document and returned it to the Colonel, who locked it up in a drawer of his desk.

MARGERIE ALLINGHAM (adapted).

2. Translate into ENGLISH:

On croirait arriver dans le grenier d'une vaste demeure. L'escalier en colimaçon qui nous a conduits jusqu'ici est aussi étroit, aussi poussiéreux que celui d'un vieux château.

"Votre théâtre aurait-il également des passages secrets?"

Mon guide sourit: "Il n'est pas donné à tout le monde d'emprunter l'entrée des artistes. Ne faites pas attention à la poussière! Nous la conservons religieusement. Cette ambiance, croyez-moi, est nécessaire à l'acteur. La nudité de ces lieux l'aide, pour entrer en scène. Rien ici ne retient le regard, ne distrair l'attention. Tout est gris et terne. Ainsi, l'acteur sera plus sensible aux lumières de la scène, aux couleurs du décor et au magnétisme des centaines d'yeux fixés sur lui."

La scène apparaît, nue, immense. Un fauteuil et quelques chaises sont les seuls meubles qui s'y trouvent. Un unique projecteur répand sur l'ensemble une clarté diffuse. Monsieur R... me présente les acteurs qui viennent d'arriver. Ils sont en tenue de ville et garderont leur pardessus pendant toute la répétition, car on ne chauffe la salle que le soir.

Je voudrais pouvoir recréer l'atmosphère de cette répétition à laquelle j'allais assister. J'étais surtout frappé par l'attention dont chacun faisait preuve au cours du travail. On préparait la reprise de *Caligula*.

ROGER GIROD (adapted).

Lower Certificate

TRANSLATION  
FROM AND  
INTO FRENCH  
*Tuesday*

21 JUNE 1955  
Morning  
2½ hours

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

TRANSLATION FROM AND INTO FRENCH

(Two and a half hours)

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stood at his father's elbow, his young face deadly serious, a distinct hint of nervousness in his manner.

"I think this one passage will be sufficient," the stranger continued, placing a finger at the bottom of the document. He cleared his throat again and began to read huskily and without expression.

When he had finished reading, he rolled up the document and returned it to the Colonel, who locked it up in a drawer of his desk.

MARGERIE ALLINGHAM (adapted).

2. Translate into ENGLISH:

On croirait arriver dans le grenier d'une vaste demeure. L'escalier en colimaçon qui nous a conduits jusqu'ici est aussi étroit, aussi poussiéreux que celui d'un vieux château.

"Votre théâtre aurait-il également des passages secrets?"

Mon guide sourit: "Il n'est pas donné à tout le monde d'emprunter l'entrée des artistes. Ne faites pas attention à la poussière! Nous la conservons religieusement. Cette ambiance, croyez-moi, est nécessaire à l'acteur. La nudité de ces lieux l'aide, pour entrer en scène. Rien ici ne retient le regard, ne distrait l'attention. Tout est gris et terne. Ainsi, l'acteur sera plus sensible aux lumières de la scène, aux couleurs du décor et au magnétisme des centaines d'yeux fixés sur lui."

La scène apparaît, nue, immense. Un fauteuil et quelques chaises sont les seuls meubles qui s'y trouvent. Un unique projecteur répand sur l'ensemble une clarté diffuse. Monsieur R... me présente les acteurs qui viennent d'arriver. Ils sont en tenue de ville et garderont leur pardessus pendant toute la répétition, car on ne chauffe la salle que le soir.

Je voudrais pouvoir recréer l'atmosphère de cette répétition à laquelle j'allais assister. J'étais surtout frappé par l'attention dont chacun faisait preuve au cours du travail. On préparait la reprise de *Caligula*.

ROGER GIROD (adapted).

**Lower Certificate**

TRANSLATION  
FROM AND  
INTO FRENCH

Tuesday  
22 JUNE 1954  
Morning  
2½ hours

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

TRANSLATION FROM AND INTO FRENCH

(Two and a half hours)

I. Translate into FRENCH:

I arrived more tired and hungry than ever, only to be told at the inn that they had no accommodation for me but that the village baker might be able to put me up, as he had a spare-room in his house. So to the baker's I went and found it a queer, tumbledown old place, standing a little back from the street.

At my knock the baker himself came out—a mild-looking, flabby-faced man, with his mouth full, in a very loose suit of bluish pyjama-like garments. He listened to my story, swallowing his mouthful, then cast his eyes down and rubbed his chin, which had a small tuft of hairs growing on it, and finally said: "I don't know. I must ask my wife. But come in and have a cup of tea—we're just having a cup ourselves, and perhaps you'd like one."

I should have liked a dozen cups and a great many slices of bread and butter, if there was nothing else more substantial to be had. However, I only said: "Thank you," and followed him to where his wife was seated behind the teapot. Imagine my surprise when I found that besides tea there was a hot meal on the table—a ham, a roast fowl, mashed potatoes, cabbage, a rice pudding and stewed fruit.

"You call this a cup of tea!" I exclaimed delightedly.

W. H. HUDSON (adapted).

[TURN OVER

2. Translate into ENGLISH:

Je ne le cache pas: j'ai peur en automobile, je veux dire dans certaines automobiles, conduites par certains chauffeurs, mais je n'ose jamais le leur faire comprendre. On ne peut pas commodément dire à l'as du volant qui vous propose de faire une promenade: "Pas avec vous, en tout cas; j'ai peur." Par la suite, cependant, on paye cher sa délicatesse. Et c'est bien ce qui m'est arrivé le lundi de Pâques, un lundi de Pâques que je m'apprêtais à passer des plus tranquillement chez moi. Pourquoi, grands dieux, me suis-je penché au balcon vers trois heures, en entendant l'appel répété d'un klaxon? "Alors, tu viens, on va faire un tour!" L'ami en question possède une Jaguar, et il passe à ses yeux pour un fin conducteur. Dire que nous avons remonté l'avenue du Président Wilson serait inexact: nous l'avons survolée. "Ce qu'il y a d'agréable, me disait-il, penché vers moi, tout en allumant une cigarette, c'est qu'aujourd'hui il n'y a personne dans les rues!" Dieu soit béni, un agent nous siffla; mon ami freina des quatre roues. "Dites donc, fit l'agent, en s'avancant lentement, vous vous croyez à Montlhéry? Vos papiers!" Et c'est là qu'il y eut un miracle: mon ami, le fin conducteur, ne les avait pas; il les avait oubliés chez lui.

HENRI MULLER (adapted).

**Lower Certificate**

TRANSLATION  
FROM AND  
INTO FRENCH

*Tuesday*

**22 JUNE 1954**

Morning

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UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

**Lower Certificate in English**

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HENRI MULLER (adapted).



## Lower Certificate

DICTATION  
PASSAGES

JUNE 1954

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

## DICTATION PASSAGES

[The stress-marks, which are printed **before** the stressed syllables, are given as a guide for the first and third readings. The approximate time to be taken for the **first** reading is shown at the end of each passage. All punctuation marks are to be dictated.]

## PASSAGE I.

'Every 'summer / we ex'changed / the 'stale 'air of the 'city / for 'life on a 'farm / in the re'mote 'country. / I have 'two 'special recol'lections / of this farm, / 'one being the oc'casion when the 'youth / who spent 'most of his 'holidays with us, / and con'sidered him'self / en'gaged to my 'sister, / 'promised me 'sixpence / if I would 'ride a 'thin 'black 'pig / 'round the 'yard. / For 'some 'reason or 'other / we were 'dressed / in 'clean 'lace 'frocks / and 'when, / after being 'thrown / into a 'muddy 'duck-pond, / I was 'dragged into 'father's 'study / by our in'furiated 'nurse, / it was easy to 'see / he could 'hardly 'keep his 'countenance. / The 'other 'incident / was when I 'bribed a 'cowman / to 'let me 'see a 'pig 'killed. / The ter'rific 'scolding that 'followed / was un'necessary, / since for 'months 'afterwards I felt 'ill / when'ever I 'heard a 'pig 'squealing.

[52 seconds.]

[TURN OVER]

2  
PASSAGE II.

I 'looked at the 'bird's 'nest / on the 'ledge of 'rock, / then 'started 'down the 'side of the 'cliff, / 'keeping to the 'grassy 'spots / and a 'voiding 'those / where the 'rock was 'bare. / It was 'not 'too 'difficult, / and I 'knew it would be 'easier / to 'climb 'up a 'gain, / for 'climbing 'up / you can 'see where you are 'going, / while 'getting 'down / you 'have to 'guess, / or 'trust to your 'feet / to 'feel for the 'holds. / The 'grass was 'dry / and it was 'not 'strongly 'rooted; / but I 'knew how much 'weight / I could 'put on it / be'fore it 'started to 'give 'way. / It was 'not un'til / I was 'just a'bove the 'nest / that I 'found 'anything 'difficult. / 'Here the 'surface was 'crumbly; / but 'using my 'hands and 'knees / as a 'brake, / I 'slid 'down to the 'very 'ledge / where the 'nest 'was.

[53 seconds.]

PASSAGE III.

The 'great 'ice 'pack / is a 'series of 'small 'flat 'islands / 'not 'more than about 'four 'feet 'high / at the 'edge, / with a 'rise or 'hummock / 'here and 'there, / and 'all 'covered with 'dazzling 'snow. / In 'hard, / 'frosty 'weather, / 'these 'islands are 'all 'joined to'gether, / but towards the 'end of the 'season / they 'separate and be'gin to 'move. / You have to 'watch your 'chance / when 'leaping from 'one 'island / to a'nother, / and 'jump at the 'moment / when the 'two are 'pretty 'close to'gether. / If you 'miss your 'leap, / 'in you 'go; / but the 'man 'with you / will 'quickly 'throw you / the 'end of a 'rope, / and 'up you 'come. / 'Not to 'hurry / in a 'case of 'this 'kind / 'might 'mean the 'loss / of 'one or 'both 'legs, / as the 'moving 'ice / might 'close 'in on you / and you would be 'squeezed 'flat.

[54 seconds.]

3  
PASSAGE IV.

We are 'always 'having 'trouble / from 'people who 'park their 'cars / out'side our 'front 'gate. / 'During the 'day, / when my 'husband is at the 'office, / I spend 'half my 'time / 'dashing 'out of the 'house / to 'tell them / 'not to 'leave their 'cars 'there, / but the 'drivers have 'generally disap'peared / be'fore I can 'catch them, / 'leaving the 'car 'doors 'firmly 'locked. / This 'morning, / 'just as I was 'bending / over the 'kitchen 'sink, / I 'heard / the fa'miliar 'squeal of 'brakes / and the 'slam of a 'car 'door. / I rushed 'angrily 'out / with my 'hands / all 'covered with 'soap-suds. / To my sur'prise / the 'driver was 'standing by his 'car, / 'waiting for me. / Be'fore I could 'start 'scolding him, / he 'raised his 'hat po'litely, / and pro'ducing a 'neat 'metal 'plate / 'bearing, / in 'large' capital 'letters, / the 'words 'NO 'PARKING, / 'asked if I would 'like to 'buy one.

[54 seconds]

PASSAGE V

'During the 'morning / they 'came a'gain to the 'spot / from 'which they had 'gone 'home / the 'night be'fore. / Yet it 'seemed no 'longer / the 'same 'place at 'all. / The 'sky was a 'deep 'blue, / and 'little 'white 'clouds / were 'driving fast a'cross it / in the 'fresh 'morning 'wind. / The 'round 'lake / in the 'centre of the 'valley / and the in'numerable 'pools / of 'bog 'water / no 'longer looked 'black and 'sinister, / but 'blue like the 'sky, / with 'silvery re'flections of the 'sun / 'dancing 'merrily 'over their 'surface. / The 'waterfall, / whose 'distant 'roaring / had 'seemed so 'strange 'last 'night, / was 'now 'visible / as a 'sparkling 'silver 'ribbon / at the 'edge / of one of the 'huge 'rocks 'opposite. / And 'even as they 'stood / 'gazing at 'all 'this in sur'prise, / a 'couple of 'wild 'geese / came 'flying a'cross the 'valley / and 'glided 'down on to the 'lake.

[52 seconds.]

N<sup>o</sup> 0307

Lower Certificate

DICTION  
PASSAGES

JUNE 1955

UNIVERSITY OF CAMBRIDGE  
LOCAL EXAMINATIONS SYNDICATE

Lower Certificate in English

DICTION PASSAGES

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'scrambled in 'terror / 'up to the 'top of the 'staff, / where it  
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[56 seconds.]

[TURN OVER



## PASSAGE II.

It was 'one / of those 'fresh Sep'tember 'mornings / which 'seem 'more like a 'second 'spring / than the be'ginning of 'autumn. / 'Even the 'dogs ap'peared to 'feel / that 'this / was an un'usually 'pleasant 'day. / With their 'noses / 'low to the 'ground / they 'raced a'head of the 'family, / 'tearing 'in and 'out / of the 'bushes, / 'rushing a 'few 'yards / down the 'drive, / 'each on its 'own, / and 'then, / be'fore 'bounding 'off again, / 'stopping to 'turn / and 'wag their 'tails, / as 'though to 'show / how de'lighted they 'were / that their 'mistress was 'with them again. / 'Only 'then / did she 'fully 'realise / that she was 'back at 'home, / and the 'feeling of con'tentment / which 'this reali'sation 'brought to her / 'drove 'out of her 'mind / the 'memory / of the 'many 'weary 'months / that she had 'spent / lying on a 'hospital 'bed.

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## PASSAGE V.

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'During the po'tato-picking 'season / the 'children were 'given / a 'week's 'holiday / in 'order to 'help / with the 'harvest. / They 'usually took 'sandwiches with them / and 'ate them in the 'fields, / but 'one 'terribly 'cold 'day, / when the 'east 'wind 'blew 'steadily / and 'cut like a 'knife, / a 'shepherd's 'wife / took 'pity on them. / She 'came 'out / and 'called them 'into her 'cottage. / 'There they 'all 'sat / in a 'half-'circle on the 'floor / in 'front of the 'kitchen 'fire, / 'warming their 'hands at the 'blaze. / 'Not con'tent with 'this, / she 'brought a 'large 'saucepan / of 'hot 'boiled po'tatoes / which she 'put 'down / in the 'middle of them, / 'telling them to 'help them'selves. / A 'cup of 'hot 'tea 'followed, / and 'when they 'left / to 'go 'back to their po'tato-picking / they 'all as'sured her / that they had 'never / en'joyed a 'meal so 'much be'fore.

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## Lower Certificate

DICTIONATION  
PASSAGES

JUNE 1955

UNIVERSITY OF CAMBRIDGE

LOCAL EXAMINATIONS SYNDICATE

## Lower Certificate in English

## DICTIONATION PASSAGES

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DICTIONATION  
PASSAGES

JUNE 1955

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LOCAL EXAMINATIONS SYNDICATE

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DICTIONATION PASSAGES

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[TURN OVER

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[TURN OVER

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## Lower Certificate

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PASSAGES

JUNE 1955

UNIVERSITY OF CAMBRIDGE  
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*(Handwritten notes in red ink, mostly illegible)*

## Lower Certificate

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5 Read.  
5 Bonus

[TURN OVER



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At the 'next 'station / a 'man with a 'pipe / in his 'mouth / got 'into the 'train. / A 'lady 'opposite / 'leaned 'forward / and 'asked 'him / if he had 'noticed / that he was in a 'non-'smoking com'partment. / He 'smiled 'cheerfully at her, / and 'said that he was 'fully a'ware / of the 'fact, / but he 'did not re'move his 'pipe / from his 'mouth. / At the 'next 'station, / 'therefore, / the 'lady 'called the 'guard / and 'asked him / to 'make the of'fender stop 'smoking / in a 'non-'smoking com'partment. / 'At 'this, / the 'man re'moved his 'pipe / from his 'mouth, / 'pointed 'out to the 'guard / that it was 'not 'lighted / and that he was 'perfectly en'titled / to 'suck it / as 'long as he 'liked / pro'vided that he 'did not 'smoke it, / and 'spent the 'rest of the 'journey / 'smiling 'more 'cheerfully than 'ever / at the 'lady 'opposite.

[54 seconds.]

[TURN OVER

## PASSAGE II.

The 'chief / of the 'government de'partment / where I 'went to  
 'work / when I 'left 'school / was 'always com'plaining / of the  
 'bad 'handwriting / of his 'juniors. / 'One 'morning / he 'came  
 into the 'main 'office / with a 'letter in his 'hand. / It had been  
 re'turned to him / by the 'clerk / re'sponsible for 'posting letters, /  
 who had in'structions / to 'bring to his 'notice / 'any 'letter / with  
 an il'legible ad'dress on it. / He 'waved the of'fending 'letter / in  
 the 'air / and 'threatened / to 'make an ex'ample / of the 'culprit. /  
 'Then he 'opened the 'letter / to 'find 'out / 'who had 'written it. /  
 He 'looked at the 'signature, / and 'went 'back into his 'own  
 'office / with'out 'uttering a nother 'word. / We 'found 'out 'later /  
 from his 'secretary / that it was a 'note to his 'tailor / that 'he  
 him'self had 'written. / He 'never com'plained / of our 'hand-  
 writing a'gain.

[55 seconds.]

## PASSAGE III.

'One 'day / a 'couple ar'rived at the 'church / for their 'wedding,  
 / and were dis'tressed to 'find / that the 'vicar, / who was an  
 enthusi'astic 'fisherman, / was 'not 'there / to per'form the  
 'ceremony. / He had for'gotten his ap'pointment / and was  
 'fishing for 'trout / in a 'stream 'two 'miles a'way. / A 'messenger  
 was 'sent / to 'fetch him. / He 'hurried 'home. / A 'quarter of a  
 'mile / from the 'church / he 'saw by his 'watch / that the 'legal  
 'hour / for 'marrying the 'couple / had 'passed, / but 'on ar'riving /  
 in 'sight of the 'church 'clock / he 'found / he had a 'quarter of an  
 'hour / in 'hand. / 'After the 'ceremony / he 'said to the 'clerk, /  
 "I 'wonder 'why my 'watch / 'suddenly 'gained so 'much." /  
 "Your 'watch is 'all 'right," / 'answered the 'clerk, / "but 'when  
 I 'saw / you were 'going to be 'late / I 'put the 'clock 'back / 'half  
 an 'hour."

[55 seconds.]

## PASSAGE IV.

It was 'not 'far to the 'glen. / The 'sisters 'left their 'cycles / at  
 the 'little 'farm / at the be'ginning of the 'wood. / The 'wood  
 'dipped 'down 'steeply / to a 'little 'river / that 'rushed over  
 'great 'boulders. / 'On the 'far 'bank / was the 'summer house /  
 'built by 'some 'former 'country 'gentleman, / but 'now a 'pleasant  
 'ruin. / 'This had 'been / a 'favourite 'spot of theirs / 'during their  
 'school 'holidays. / 'Many a 'Saturday 'after'noon / had been  
 'spent / 'idling on the 'sun-warmed 'rocks, / or 'paddling in the  
 'clear 'waters / of the 'stream. / They 'made their 'way / to a  
 'little 'hidden re'treat / where they had 'often 'picnicked / and  
 'sun-bathed. / The 'sound of the 'rushing 'water / was 'pleasant /  
 and the 'sun was 'warm, / al'though there was / 'more than a 'hint  
 of 'Autumn / in the 'air. / The 'two 'girls / 'flung off their 'shoes  
 and 'stockings / and 'stretched themselves 'out / on the 'heather.

[56 seconds.]

## PASSAGE V.

My 'father and 'I / were 'great 'friends. / We were 'very 'fond  
 of 'walking, / and when'ever we had a 'chance / we 'set 'out / for  
 a 'good 'walk / in the 'country. / My 'father made 'notes / of 'all  
 the 'places / that at'tracted our at'tention, / the 'length of 'time /  
 we had 'walked, / and 'other 'details / of 'interest to us. / In the  
 'winter, / when the 'weather 'often pre'vented us / from 'going  
 'out, / a 'map was brought 'out / and we 'went 'over / our 'various  
 'journeys / and 'talked about them, / which 'gave us 'great  
 'pleasure. / We were 'also 'interested / in 'railway travel. / A  
 'railway 'time'table / with a 'map in it / was 'quite an edu'cation  
 to me. / I 'used to 'trace the 'distances / between 'different 'towns /  
 through 'which 'trains / would 'have to 'go, / and I 'learnt the  
 'names / of 'all the im'portant 'villages / and the 'counties they  
 were 'in.

[55 seconds.]

[TURN OVER

## PASSAGE VI.

It was 'nearly 'dark / when he 'reached the 'buildings, / and he 'stood for a 'moment / in the 'shadow of a 'high 'wall / 'listening in'tently. / There was 'no 'sound / from with'in. / He was con-  
vinced that his ap'proach / had 'not been ob'served, / and he be'gan to 'move 'slowly / a'long the 'wall, / 'walking 'very 'quietly / and 'using his e'lectric 'torch / as 'little as 'possible. / At 'last / he 'came to the 'iron 'gates / which 'formed the 'main 'entrance, / but they were 'locked. / He 'knew there was a 'second 'entrance / on the 'eastern 'side, / and he 'made his 'way to it, / 'walking more 'quickly 'now / because the 'thick 'turf / 'deadened the 'sound / of his 'footsteps. / To the 'left of the 'second 'gate / was a 'small 'cottage. / There were 'no 'lights in the 'windows, / but from a 'room / on the 'ground 'floor / came the 'murmur of 'voices.

[54 seconds.]

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## Lower Certificate in English

## DICTATION PASSAGES

[The stress-marks, which are printed **before** the stressed syllables, are given as a guide for the first and third readings. The approximate time to be taken for the **first** reading is shown at the end of each passage. All punctuation marks are to be dictated.]

## PASSAGE I.

At the 'next 'station / a 'man with a 'pipe / in his 'mouth / got 'into the 'train. / A 'lady 'opposite / 'leaned 'forward / and 'asked 'him / if he had 'noticed / that he was in a 'non-'smoking com'partment. / He 'smiled 'cheerfully at her, / and 'said that he was 'fully a'ware / of the 'fact, / but he 'did not re'move his 'pipe / from his 'mouth. / At the 'next 'station, / 'therefore, / the 'lady 'called the 'guard / and 'asked him / to 'make the of'fender stop 'smoking / in a 'non-'smoking com'partment. / 'At 'this, / the 'man re'moved his 'pipe / from his 'mouth, / 'pointed 'out to the 'guard / that it was 'not 'lighted / and that he was 'perfectly en'titled / to 'suck it / as 'long as he 'liked / pro'vided that he 'did not 'smoke it, / and 'spent the 'rest of the 'journey / 'smiling 'more 'cheerfully than 'ever / at the 'lady 'opposite.

[54 seconds.]

## PASSAGE II.

The 'chief / of the 'government de'partment / where I 'went to  
 'work / when I 'left 'school / was 'always com'plaining / of the  
 'bad 'handwriting / of his 'juniors. / 'One 'morning / he 'came  
 into the 'main 'office / with a 'letter in his 'hand. / It had been  
 re'turned to him / by the 'clerk / re'sponsible for 'posting letters, /  
 who had in'structions / to 'bring to his 'notice / 'any 'letter / with  
 an il'legible ad'dress on it. / He 'waved the of'fending 'letter / in  
 the 'air / and 'threatened / to 'make an ex'ample / of the 'culprit. /  
 'Then he 'opened the 'letter / to 'find 'out / 'who had 'written it. /  
 He 'looked at the 'signature, / and 'went 'back into his 'own  
 'office / with'out 'uttering a'nother 'word. / We 'found 'out 'later /  
 from his 'secretary / that it was a 'note to his 'tailor / that 'he  
 him'self had 'written. / He 'never com'plained / of our 'hand-  
 writing a'gain.

[55 seconds.]

## PASSAGE III.

'One 'day / a 'couple ar'rived at the 'church / for their 'wedding,  
 / and were dis'tressed to 'find / that the 'vicar, / who was an  
 enthusi'astic 'fisher'man, / was 'not 'there / to per'form the  
 'ceremony. / He had for'gotten his ap'pointment / and was  
 'fishing for 'trout / in a 'stream 'two 'miles a'way. / A 'messenger  
 was 'sent / to 'fetch him. / He 'hurried 'home. / A 'quarter of a  
 'mile / from the 'church / he 'saw by his 'watch / that the 'legal  
 'hour / for 'marrying the 'couple / had 'passed, / but 'on ar'iving /  
 in 'sight of the 'church 'clock / he 'found / he had a 'quarter of an  
 'hour / in 'hand. / 'After the 'ceremony / he 'said to the 'clerk, /  
 "I 'wonder 'why my 'watch / 'suddenly 'gained so 'much." /  
 "'Your 'watch is 'all 'right," / 'answered the 'clerk, / "but 'when  
 I 'saw / you were 'going to be 'late / I 'put the 'clock 'back / 'half  
 an 'hour."

[55 seconds.]

## PASSAGE IV.

It was 'not 'far to the 'glen. / The 'sisters 'left their 'cycles / at  
 the 'little 'farm / at the be'ginning of the 'wood. / The 'wood  
 'dipped 'down 'steeply / to a 'little 'river / that 'rushed over  
 'great 'boulders. / On the 'far 'bank / was the 'summer house /  
 'built by 'some 'former 'country 'gentleman, / but 'now a 'pleasant  
 'ruin. / 'This had 'been / a 'favourite 'spot of theirs / 'during their  
 'school 'holidays. / 'Many a 'Saturday 'after'noon / had been  
 'spent / 'idling on the 'sun-warmed 'rocks, / or 'paddling in the  
 'clear 'waters / of the 'stream. / They 'made their 'way / to a  
 'little 'hidden re'treat / where they had 'often 'picnicked / and  
 'sun-bathed. / The 'sound of the 'rushing 'water / was 'pleasant /  
 and the 'sun was 'warm, / al'though there was / 'more than a 'hint  
 of 'Autumn / in the 'air. / The 'two 'girls / 'flung off their 'shoes  
 and 'stockings / and 'stretched themselves 'out / on the 'heather.

[56 seconds.]

## PASSAGE V.

My 'father and 'I / were 'great 'friends. / We were 'very 'fond  
 of 'walking, / and when'ever we had a 'chance / we 'set 'out / for  
 a 'good 'walk / in the 'country. / My 'father made 'notes / of 'all  
 the 'places / that at'tracted our at'tention, / the 'length of 'time /  
 we had 'walked, / and 'other 'details / of 'interest to us. / In the  
 'winter, / when the 'weather 'often pre'vented us / from 'going  
 'out, / a 'map was brought 'out / and we 'went 'over / our 'various  
 'journeys / and 'talked about them, / which 'gave us 'great  
 'pleasure. / We were 'also 'interested / in 'railway travel. / A  
 'railway 'time'table / with a 'map in it / was 'quite an edu'cation  
 to me. / I 'used to 'trace the 'distances / between 'different 'towns /  
 through 'which 'trains / would 'have to 'go, / and I 'learnt the  
 'names / of 'all the im'portant 'villages / and the 'counties they  
 were 'in.

[55 seconds.]

## PASSAGE VI.

It was 'nearly 'dark / when he 'reached the 'buildings, / and he 'stood for a 'moment / in the 'shadow of a 'high 'wall / 'listening in'tently. / There was 'no 'sound / from with'in. / He was con- 'vinced that his ap'proach / had 'not been ob'served, / and he be'gan to 'move 'slowly / a'long the 'wall, / 'walking 'very 'quietly / and 'using his e'lectric 'torch / as 'little as 'possible. / At 'last / he 'came to the 'iron 'gates / which 'formed the 'main 'entrance, / but they were 'locked. / He 'knew there was a 'second 'entrance / on the 'eastern 'side, / and he 'made his 'way to it, / 'walking more 'quickly 'now / because the 'thick 'turf / 'deadened the 'sound / of his 'footsteps. / To the 'left of the 'second 'gate / was a 'small 'cottage. / There were 'no 'lights in the 'windows, / but from a 'room / on the 'ground 'floor / came the 'murmur of 'voices.

[54 seconds.]

In English:

1 Billion = a million million = 1,000,000,000

1 Trillion = a million billion =  $10^{18}$

1 Quadrillion = a billion billion =  $10^{24}$

In the U.S.A. + France; + sometimes in England.

1 Billion =  $10^9$  a thousand million

1 Trillion =  $10^{12}$  a million million

~~1. Biller = 2 million = 1,000,000~~  
1. Biller = 2 million = 10<sup>6</sup>  
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Letter U.S.A. + France + ...  
1. Biller = 10<sup>6</sup>  
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$$(ii) 2 = \dots$$

$$\text{or } n = \frac{2d}{\dots}$$

$$(i) (a) 3x^2 - 12y^2 = 3(x^2 - 4y^2) = 3(x+2y)(x-2y)$$

$$(b) (t+y)^2 - 2t - 2y = (t+y)^2 - 2(t+y) = (t+y)(t+y-2)$$

$$(ii) h^7 \cdot h^5 = h^{12} \text{ and } h^4 \cdot h^8 = h^{12}$$

$$(iii) \frac{2x}{5} - \frac{2(2x-3)}{5} = \frac{2}{5} \Rightarrow 2x - (20x - 30) = 20$$

$$\text{or } 6x - 20x + 30 = 20 \Rightarrow -14x = -10$$

$$(i) \frac{5}{5-x} - \frac{4}{4-x} = \frac{5(4-x) - 4(5-x)}{(5-x)(4-x)} = \frac{20 - 5x - 20 + 4x}{(5-x)(4-x)} = -\frac{x}{(5-x)(4-x)}$$

$$(ii) 2 = (2^2) = 2^2 = 4 \text{ Ans. 1}$$

$$(3^2) = 3^2 = 9 \text{ Ans. 2}$$

$$(4^2) = 16 = (2^4) = 2^4 = 16 \text{ Ans. 3}$$



*[Faint, mostly illegible handwritten notes in blue ink on aged, stained paper.]*

*[Handwritten mathematical work in blue ink on aged, stained paper. Includes several problems and solutions.]*

4. (ii)  $x^2 - 11x + 28 = (x-7)(x-4)$

5. (i) (a)  $(1-2x)(1+kx-4x)$  is the form  
 & the coefficient of  $x^2$  in this product is:  $8 - 6k$   
 (b) the term in  $x$  in this product is:  $(-2k)(-4x)$   
 $= 8k - 2kx$   
 & the coefficient of  $x$  in this product is:  $(8-2k)$   
 $\therefore 8-2k = 6 \therefore 2k = 8-6 \therefore k = 1$

(ii)  $\frac{2y+2}{2y+1} = \frac{2y+1}{y+2}$  & multiplying across:  
 $2y^2 + 8y + 4 = 4y^2 + 8y + 2 \therefore y^2 = 1$

6. 104 articles - 7 articles = 97 articles So  
 a. let  $(x)$  articles = number of articles sold to  
 (i)  $(2x)$  " " " " " " " " " " " "  
 "  $(2x+2)$  " " " " " " " " " " " "  
 c.  $x + 2x + 2x + 2 = 97 \therefore 5x = 93 \therefore x = 18$

*[Additional faint calculations and notes on the right side of the page.]*



*[Faint, mostly illegible handwritten text in blue ink on the left page of the notebook.]*

$\therefore \frac{5}{8-x}$  hrs. time taken to cover distance A to B  
 $\therefore \frac{5}{8+x}$  hrs. time taken to cover distance B to A  
 $\therefore \frac{5}{8-x} + \frac{5}{8+x} = 1\frac{1}{3}$  or  $\frac{5}{8-x} + \frac{5}{8+x} = \frac{4}{3}$   
 $5 \times 3(8+x) + 5 \times 3(8-x) = 4(8-x)(8+x)$   
 $\therefore 120 + 15x + 120 - 15x = 4(64 - x^2)$  or  
 $\therefore 64 - x^2 = 60 \therefore x^2 = 4 \therefore x = \pm 2$   
 $\therefore x = 2 \text{ km/hr.}$  (-2 is to be rejected in this case)  
 $\therefore$  time taken to travel from A to B =  $\frac{5}{8-x} = \frac{5}{8-2}$

$\xrightarrow{A}$   
 $\xleftarrow{B}$   
 Answer:  
 $\frac{5}{6} \times 60 = 50$  minutes

Subject : Algebra

Date : 25/5/1973

Class : 4th Scientific

Time : 8:00 - 10:00 a.m.

Answer all questions :

1. (i) Find the value of  $5c^2 - 2d$  when  $c = -3$  and  $d = 9$ . (2 marks)

(ii) Express in its simplest form without brackets

$$(x + y)^2 - (x - y)^2 - 3xy. \quad (2 \text{ marks})$$

(iii) Rearrange the formula  $s = ut + \frac{1}{2}at^2$  to give  $u$  in terms of  $a$ ,  $s$  and  $t$ . (2 marks)

2. (i) Factorize completely

(a)  $3x^2 - 12y^2$ , (2 marks)

(b)  $(p + q)^2 - 2p - 2q$ . (2 marks)

(ii) If  $h^7 \times h^5 = h^x \div h^4$  find the value of  $x$ . (2 marks)

(iii) Solve the equation  $\frac{2x}{5} - \frac{2(2x - 3)}{3} = \frac{2}{15}$ . (2 marks)

3. (i) Express as a single fraction in its lowest terms

$$\frac{5}{5 - x} - \frac{4}{4 - x}. \quad (2 \text{ marks})$$

(ii) Without using tables, find the values of

$$8^{\frac{2}{3}}, (3^5)^{\frac{1}{5}}, \left(\frac{1}{16}\right)^{-\frac{1}{2}} \quad (3 \text{ marks})$$

(iii) Use logarithm tables to find the value of

$$\sqrt[3]{0.6791}. \quad (4 \text{ marks})$$

4. (i) Solve the equation  $3x^2 - 5x + 1 = 0$ , giving the roots correct to two decimal places. Given  $\sqrt{13} = 3.606$ . (4 marks)

(ii) The  $n$ th term of a series is

$$\frac{n(-3)^n}{n + 3}.$$

Find the numerical value of the third term. (4 marks)

5. (i) (a) Find the coefficient of  $x^4$  in the product of

$$(1 - 2x - 2x^2) \text{ and } (1 + kx - 4x^2). \quad (2 \text{ marks})$$

(b) If the coefficient of  $x^3$  in this product is 6, find the value of  $k$ . (2 marks)

(ii) Find the two values of  $y$  which satisfy the equation

$$\frac{3y + 2}{2y + 3} = \frac{2y + 1}{y + 2}. \quad (4 \text{ marks})$$

6. A wholesaler has 104 articles for sale. After selling to three retailers he has 7 articles left. He sells 2 more articles to the first retailer than to the second and twice as many articles to the second retailer than to the third. Find the number of articles sold to each retailer. (11 marks)

7. (i) If  $x = -2$  satisfies the equation  $6x^3 + x^2 + kx + 6 = 0$ , find the value of  $k$  and the other two values of  $x$  which satisfy the equation. (9 marks)

(ii) Solve the equations  $3y^2 - x^2 + 2xy = 7$ ,  $y + 3x - 1 = 0$ . (9 marks)

8. (i) Rationalising the denominator, find the value of  $\frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$  correct to three decimal places, given  $\sqrt{6} = 2.449$ . (8 marks)

(ii) Express in its simplest form and with positive indices  $\frac{a^{\frac{1}{3}} b^2 (a^{-2} b)^{-\frac{1}{2}}}{b^{\frac{1}{2}}}$ . (8 marks)

9. A motor boat has a speed of 8 kilometres per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometres upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (16 marks)

6. A wholesaler has 104 articles for sale. After selling to three retailers he has 7 articles left. He sells 2 more articles to the first retailer than to the second and twice as many articles to the second retailer than to the third. Find the number of articles sold to each retailer. (11 marks)

7. (i) If  $x = -2$  satisfies the equation  $6x^2 + x_2 + kx + 6 = 0$ , find the value of  $k$  and the other two values of  $x$  which satisfy the equation. (9 marks)

(ii) Solve the equations  $y + 3x - 1 = 0$  and  $3x^2 - x_2 + 2xy = 7$ . (9 marks)

8. (i) Rationalising the denominator, find the value of  $\frac{1}{\sqrt{3} + \sqrt{2}}$  correct to three decimal places, given  $\sqrt{3} = 1.732$ . (8 marks)

(ii) Express in its simplest form and with positive indices  $\frac{a^{\frac{1}{2}} b^{\frac{2}{3}} c^{\frac{1}{4}}}{a^{\frac{1}{2}} b^{\frac{2}{3}} c^{\frac{1}{4}}}$ . (8 marks)

9. A motor boat has a speed of 8 kilometres per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometres upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (13 marks)

1. (i)  $x^2 + \sqrt{2}x + 1 = 0$  (9 marks)  
 (ii)  $x^2 + \sqrt{2}x + 1 = 0$  (9 marks)

2.  ~~$x^2 + 3x - 1 = 0$~~

3. Find the value of  $\frac{1}{\sqrt{3} + \sqrt{2}}$  correct to three decimal places, given  $\sqrt{3} = 1.732$ . (8 marks)

4. Express in its simplest form and with positive indices  $\frac{a^{\frac{1}{2}} b^{\frac{2}{3}} c^{\frac{1}{4}}}{a^{\frac{1}{2}} b^{\frac{2}{3}} c^{\frac{1}{4}}}$ . (8 marks)

5. Rationalise the denominator of  $\frac{1}{\sqrt{3} + \sqrt{2}}$ . (13 marks)

(i)  $\frac{10\sqrt{2} - 10}{2\sqrt{2} + 1}$  (13 marks)  
 (ii)  $\frac{10\sqrt{2} - 10}{2\sqrt{2} + 1}$  (13 marks)

$$x^2 + \frac{1}{x} = \dots$$

$$(ii) (x^2 + 4) \div \frac{x}{x^2 + 4}$$

$$\boxed{x^2} \quad \boxed{\frac{1}{x^2}} \quad \text{Ans.}$$

$$\cdot (\sqrt{x^2 + 2x^{\frac{1}{2}} - 16x^{-\frac{1}{2}} - \frac{32}{x}}) \div (x^{\frac{1}{2}} + 4x^{-\frac{1}{2}} + \frac{4}{x}) \quad \text{Ans.}$$

$$\begin{array}{r|l} x^{\frac{1}{2}} + 2x^{\frac{1}{2}} - 16x^{-\frac{1}{2}} - 32x^{-1} & x^{\frac{1}{2}} + 4x^{-\frac{1}{2}} + \frac{4}{x} \\ \underline{x^{\frac{1}{2}} + 4x^{-\frac{1}{2}} + \frac{4}{x}} & x^{\frac{1}{2}} - 2x^{\frac{1}{2}} + 4x^{-\frac{1}{2}} \\ -2x^{\frac{1}{2}} - 4 - 16x^{-\frac{1}{2}} - 32x^{-1} & \\ \underline{-2x^{\frac{1}{2}} - 8 - 8x^{-\frac{1}{2}}} & \\ 4 + 8x^{-\frac{1}{2}} - 16x^{-\frac{1}{2}} - 32x^{-1} & \\ \underline{4 + 16x^{-\frac{1}{2}} + 16x^{-\frac{1}{2}}} & \\ -8x^{-\frac{1}{2}} - 32x^{-\frac{1}{2}} - 32x^{-1} & \\ \underline{-8x^{-\frac{1}{2}} - 32x^{-\frac{1}{2}} - 32x^{-1}} & \end{array}$$

$$2. (i) (x+x^2-4)(x+x^2+4) = (x+x^2)^2 - 16 = x^2 + 2x^3 + x^4 - 16$$

$$\begin{aligned} (ii) (a^x + 7 + 5a^x)(a^x - 7 - 5a^x) &= [a^x + (1+5a^x)](a^x - 7 - 5a^x) \\ &= (a^x)^2 - (7+5a^x)^2 = a^{2x} - (49 + 42a^x + 25a^{2x}) \\ &= a^{2x} - 49 - 42a^x - 25a^{2x} \quad \text{Ans.} \end{aligned}$$

$\sqrt{12} = 2\sqrt{3}$   
 $\sqrt{18} = 3\sqrt{2}$   
 $\sqrt{20} = 2\sqrt{5}$   
 $\sqrt{24} = 2\sqrt{6}$   
 $\sqrt{27} = 3\sqrt{3}$   
 $\sqrt{30} = \sqrt{2 \cdot 3 \cdot 5}$   
 $\sqrt{32} = 4\sqrt{2}$   
 $\sqrt{36} = 6$   
 $\sqrt{40} = 2\sqrt{10}$   
 $\sqrt{42} = \sqrt{2 \cdot 3 \cdot 7}$   
 $\sqrt{45} = 3\sqrt{5}$   
 $\sqrt{48} = 4\sqrt{3}$   
 $\sqrt{50} = 5\sqrt{2}$   
 $\sqrt{54} = 3\sqrt{6}$   
 $\sqrt{56} = 2\sqrt{14}$   
 $\sqrt{60} = 2\sqrt{15}$   
 $\sqrt{63} = 3\sqrt{7}$   
 $\sqrt{64} = 8$   
 $\sqrt{70} = \sqrt{2 \cdot 5 \cdot 7}$   
 $\sqrt{72} = 6\sqrt{2}$   
 $\sqrt{75} = 5\sqrt{3}$   
 $\sqrt{78} = \sqrt{2 \cdot 3 \cdot 13}$   
 $\sqrt{80} = 4\sqrt{5}$   
 $\sqrt{81} = 9$   
 $\sqrt{84} = 2\sqrt{21}$   
 $\sqrt{87} = \sqrt{3 \cdot 29}$   
 $\sqrt{90} = 3\sqrt{10}$   
 $\sqrt{92} = 2\sqrt{23}$   
 $\sqrt{96} = 4\sqrt{6}$   
 $\sqrt{99} = 3\sqrt{11}$   
 $\sqrt{100} = 10$   
 $\sqrt{102} = \sqrt{2 \cdot 3 \cdot 17}$   
 $\sqrt{105} = \sqrt{3 \cdot 5 \cdot 7}$   
 $\sqrt{108} = 6\sqrt{3}$   
 $\sqrt{110} = \sqrt{2 \cdot 5 \cdot 11}$   
 $\sqrt{112} = 4\sqrt{7}$   
 $\sqrt{115} = \sqrt{5 \cdot 23}$   
 $\sqrt{117} = 3\sqrt{13}$   
 $\sqrt{119} = \sqrt{7 \cdot 17}$   
 $\sqrt{120} = 2\sqrt{30}$   
 $\sqrt{121} = 11$   
 $\sqrt{122} = \sqrt{2 \cdot 61}$   
 $\sqrt{123} = \sqrt{3 \cdot 41}$   
 $\sqrt{124} = 2\sqrt{31}$   
 $\sqrt{125} = 5\sqrt{5}$   
 $\sqrt{126} = 3\sqrt{14}$   
 $\sqrt{127} = \sqrt{127}$   
 $\sqrt{128} = 8\sqrt{2}$   
 $\sqrt{129} = \sqrt{3 \cdot 43}$   
 $\sqrt{130} = \sqrt{2 \cdot 5 \cdot 13}$   
 $\sqrt{131} = \sqrt{131}$   
 $\sqrt{132} = 2\sqrt{33}$   
 $\sqrt{133} = \sqrt{7 \cdot 19}$   
 $\sqrt{134} = \sqrt{2 \cdot 67}$   
 $\sqrt{135} = 3\sqrt{15}$   
 $\sqrt{136} = 4\sqrt{34}$   
 $\sqrt{137} = \sqrt{137}$   
 $\sqrt{138} = \sqrt{2 \cdot 3 \cdot 23}$   
 $\sqrt{139} = \sqrt{139}$   
 $\sqrt{140} = 2\sqrt{35}$   
 $\sqrt{141} = \sqrt{3 \cdot 47}$   
 $\sqrt{142} = \sqrt{2 \cdot 71}$   
 $\sqrt{143} = \sqrt{11 \cdot 13}$   
 $\sqrt{144} = 12$   
 $\sqrt{145} = \sqrt{5 \cdot 29}$   
 $\sqrt{146} = \sqrt{2 \cdot 73}$   
 $\sqrt{147} = 3\sqrt{7}$   
 $\sqrt{148} = 2\sqrt{37}$   
 $\sqrt{149} = \sqrt{149}$   
 $\sqrt{150} = 5\sqrt{6}$   
 $\sqrt{151} = \sqrt{151}$   
 $\sqrt{152} = 4\sqrt{38}$   
 $\sqrt{153} = 3\sqrt{17}$   
 $\sqrt{154} = 2\sqrt{77}$   
 $\sqrt{155} = \sqrt{5 \cdot 31}$   
 $\sqrt{156} = 2\sqrt{39}$   
 $\sqrt{157} = \sqrt{157}$   
 $\sqrt{158} = \sqrt{2 \cdot 79}$   
 $\sqrt{159} = \sqrt{3 \cdot 53}$   
 $\sqrt{160} = 4\sqrt{10}$   
 $\sqrt{161} = \sqrt{7 \cdot 23}$   
 $\sqrt{162} = 6\sqrt{3}$   
 $\sqrt{163} = \sqrt{163}$   
 $\sqrt{164} = 2\sqrt{41}$   
 $\sqrt{165} = \sqrt{3 \cdot 5 \cdot 11}$   
 $\sqrt{166} = \sqrt{2 \cdot 83}$   
 $\sqrt{167} = \sqrt{167}$   
 $\sqrt{168} = 2\sqrt{42}$   
 $\sqrt{169} = 13$   
 $\sqrt{170} = \sqrt{2 \cdot 5 \cdot 17}$   
 $\sqrt{171} = 3\sqrt{19}$   
 $\sqrt{172} = 4\sqrt{43}$   
 $\sqrt{173} = \sqrt{173}$   
 $\sqrt{174} = \sqrt{2 \cdot 3 \cdot 29}$   
 $\sqrt{175} = 5\sqrt{7}$   
 $\sqrt{176} = 4\sqrt{11}$   
 $\sqrt{177} = \sqrt{3 \cdot 59}$   
 $\sqrt{178} = \sqrt{2 \cdot 89}$   
 $\sqrt{179} = \sqrt{179}$   
 $\sqrt{180} = 6\sqrt{5}$   
 $\sqrt{181} = \sqrt{181}$   
 $\sqrt{182} = 2\sqrt{91}$   
 $\sqrt{183} = \sqrt{3 \cdot 61}$   
 $\sqrt{184} = 4\sqrt{46}$   
 $\sqrt{185} = \sqrt{5 \cdot 37}$   
 $\sqrt{186} = \sqrt{2 \cdot 3 \cdot 31}$   
 $\sqrt{187} = \sqrt{11 \cdot 17}$   
 $\sqrt{188} = 2\sqrt{47}$   
 $\sqrt{189} = 3\sqrt{21}$   
 $\sqrt{190} = \sqrt{2 \cdot 5 \cdot 19}$   
 $\sqrt{191} = \sqrt{191}$   
 $\sqrt{192} = 8\sqrt{3}$   
 $\sqrt{193} = \sqrt{193}$   
 $\sqrt{194} = \sqrt{2 \cdot 97}$   
 $\sqrt{195} = \sqrt{3 \cdot 5 \cdot 13}$   
 $\sqrt{196} = 14$   
 $\sqrt{197} = \sqrt{197}$   
 $\sqrt{198} = 3\sqrt{22}$   
 $\sqrt{199} = \sqrt{199}$   
 $\sqrt{200} = 10\sqrt{2}$

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 $\sqrt{30} = \sqrt{2 \cdot 3 \cdot 5}$   
 $\sqrt{32} = 4\sqrt{2}$   
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 $\sqrt{90} = 3\sqrt{10}$   
 $\sqrt{92} = 2\sqrt{23}$   
 $\sqrt{96} = 4\sqrt{6}$   
 $\sqrt{99} = 3\sqrt{11}$   
 $\sqrt{100} = 10$   
 $\sqrt{102} = \sqrt{2 \cdot 3 \cdot 17}$   
 $\sqrt{105} = \sqrt{3 \cdot 5 \cdot 7}$   
 $\sqrt{108} = 6\sqrt{3}$   
 $\sqrt{110} = \sqrt{2 \cdot 5 \cdot 11}$   
 $\sqrt{112} = 4\sqrt{7}$   
 $\sqrt{115} = \sqrt{5 \cdot 23}$   
 $\sqrt{117} = 3\sqrt{13}$   
 $\sqrt{119} = \sqrt{7 \cdot 17}$   
 $\sqrt{120} = 2\sqrt{30}$   
 $\sqrt{121} = 11$   
 $\sqrt{122} = \sqrt{2 \cdot 61}$   
 $\sqrt{123} = \sqrt{3 \cdot 41}$   
 $\sqrt{124} = 2\sqrt{31}$   
 $\sqrt{125} = 5\sqrt{5}$   
 $\sqrt{126} = 3\sqrt{14}$   
 $\sqrt{127} = \sqrt{127}$   
 $\sqrt{128} = 8\sqrt{2}$   
 $\sqrt{129} = \sqrt{3 \cdot 43}$   
 $\sqrt{130} = \sqrt{2 \cdot 5 \cdot 13}$   
 $\sqrt{131} = \sqrt{131}$   
 $\sqrt{132} = 2\sqrt{33}$   
 $\sqrt{133} = \sqrt{7 \cdot 19}$   
 $\sqrt{134} = \sqrt{2 \cdot 67}$   
 $\sqrt{135} = 3\sqrt{15}$   
 $\sqrt{136} = 4\sqrt{34}$   
 $\sqrt{137} = \sqrt{137}$   
 $\sqrt{138} = \sqrt{2 \cdot 3 \cdot 23}$   
 $\sqrt{139} = \sqrt{139}$   
 $\sqrt{140} = 2\sqrt{35}$   
 $\sqrt{141} = \sqrt{3 \cdot 47}$   
 $\sqrt{142} = \sqrt{2 \cdot 71}$   
 $\sqrt{143} = \sqrt{11 \cdot 13}$   
 $\sqrt{144} = 12$   
 $\sqrt{145} = \sqrt{5 \cdot 29}$   
 $\sqrt{146} = \sqrt{2 \cdot 73}$   
 $\sqrt{147} = 3\sqrt{7}$   
 $\sqrt{148} = 2\sqrt{37}$   
 $\sqrt{149} = \sqrt{149}$   
 $\sqrt{150} = 5\sqrt{6}$   
 $\sqrt{151} = \sqrt{151}$   
 $\sqrt{152} = 4\sqrt{38}$   
 $\sqrt{153} = 3\sqrt{17}$   
 $\sqrt{154} = 2\sqrt{77}$   
 $\sqrt{155} = \sqrt{5 \cdot 31}$   
 $\sqrt{156} = 2\sqrt{39}$   
 $\sqrt{157} = \sqrt{157}$   
 $\sqrt{158} = \sqrt{2 \cdot 79}$   
 $\sqrt{159} = \sqrt{3 \cdot 53}$   
 $\sqrt{160} = 4\sqrt{10}$   
 $\sqrt{161} = \sqrt{7 \cdot 23}$   
 $\sqrt{162} = 6\sqrt{3}$   
 $\sqrt{163} = \sqrt{163}$   
 $\sqrt{164} = 2\sqrt{41}$   
 $\sqrt{165} = \sqrt{3 \cdot 5 \cdot 11}$   
 $\sqrt{166} = \sqrt{2 \cdot 83}$   
 $\sqrt{167} = \sqrt{167}$   
 $\sqrt{168} = 2\sqrt{42}$   
 $\sqrt{169} = 13$   
 $\sqrt{170} = \sqrt{2 \cdot 5 \cdot 17}$   
 $\sqrt{171} = 3\sqrt{19}$   
 $\sqrt{172} = 4\sqrt{43}$   
 $\sqrt{173} = \sqrt{173}$   
 $\sqrt{174} = \sqrt{2 \cdot 3 \cdot 29}$   
 $\sqrt{175} = 5\sqrt{7}$   
 $\sqrt{176} = 4\sqrt{11}$   
 $\sqrt{177} = \sqrt{3 \cdot 59}$   
 $\sqrt{178} = \sqrt{2 \cdot 89}$   
 $\sqrt{179} = \sqrt{179}$   
 $\sqrt{180} = 6\sqrt{5}$   
 $\sqrt{181} = \sqrt{181}$   
 $\sqrt{182} = 2\sqrt{91}$   
 $\sqrt{183} = \sqrt{3 \cdot 61}$   
 $\sqrt{184} = 4\sqrt{46}$   
 $\sqrt{185} = \sqrt{5 \cdot 37}$   
 $\sqrt{186} = \sqrt{2 \cdot 3 \cdot 31}$   
 $\sqrt{187} = \sqrt{11 \cdot 17}$   
 $\sqrt{188} = 2\sqrt{47}$   
 $\sqrt{189} = 3\sqrt{21}$   
 $\sqrt{190} = \sqrt{2 \cdot 5 \cdot 19}$   
 $\sqrt{191} = \sqrt{191}$   
 $\sqrt{192} = 8\sqrt{3}$   
 $\sqrt{193} = \sqrt{193}$   
 $\sqrt{194} = \sqrt{2 \cdot 97}$   
 $\sqrt{195} = \sqrt{3 \cdot 5 \cdot 13}$   
 $\sqrt{196} = 14$   
 $\sqrt{197} = \sqrt{197}$   
 $\sqrt{198} = 3\sqrt{22}$   
 $\sqrt{199} = \sqrt{199}$   
 $\sqrt{200} = 10\sqrt{2}$

(ii)  $\sqrt{12} = 2\sqrt{3}$

$\sqrt{15} = \sqrt{3 \cdot 5} = \sqrt{3} \cdot \sqrt{5}$

$\sqrt{30} = \sqrt{2 \cdot 3 \cdot 5} = \sqrt{2} \cdot \sqrt{3} \cdot \sqrt{5}$

$\sqrt{60} = \sqrt{2^2 \cdot 3 \cdot 5} = 2\sqrt{3 \cdot 5} = 2\sqrt{15}$

(iii)  $\sqrt{2} = 2^{\frac{1}{2}}$ ,  $\sqrt{7} = 7^{\frac{1}{2}}$ ,  $\sqrt{5} = 5^{\frac{1}{2}}$

$\frac{1}{2} \sqrt{2}$

$\sqrt{2} = 2^{\frac{1}{2}} = 2^{\frac{1}{2}} = \sqrt{2} = \sqrt{4} = 2$

$\sqrt{7} = 7^{\frac{1}{2}} = 7^{\frac{1}{2}} = \sqrt{7} = \sqrt{49} = 7$

$\sqrt{5} = 5^{\frac{1}{2}} = 5^{\frac{1}{2}} = \sqrt{5} = \sqrt{25} = 5$

4. (i)  $\frac{10\sqrt{6} - 2\sqrt{7}}{3\sqrt{6} + 2\sqrt{7}} = \frac{(10\sqrt{6} - 2\sqrt{7})(2\sqrt{6} - \sqrt{7})}{(3\sqrt{6} + 2\sqrt{7})(2\sqrt{6} - \sqrt{7})}$   
 $= \frac{20\sqrt{36} - 10\sqrt{42} - 4\sqrt{42} + 2\sqrt{49}}{12 - 2\sqrt{42} + 4\sqrt{42} - 14}$   
 $= \frac{20 \cdot 6 - 14\sqrt{42} + 2 \cdot 7}{12 - 14 + 4\sqrt{42}}$   
 $= \frac{120 - 14\sqrt{42} + 14}{-2 + 4\sqrt{42}} = \frac{134 - 14\sqrt{42}}{-2 + 4\sqrt{42}}$

(ii)  $\frac{2\sqrt{ab} + 3\sqrt{c-b}}{2\sqrt{ab} - \sqrt{c-b}} = \frac{(2\sqrt{ab} + 3\sqrt{c-b})(2\sqrt{ab} + \sqrt{c-b})}{(2\sqrt{ab} - \sqrt{c-b})(2\sqrt{ab} + \sqrt{c-b})}$   
 $= \frac{4ab + 2\sqrt{ab(c-b)} + 3\sqrt{c-b} + 3\sqrt{c-b}}{4ab - (c-b)}$   
 $= \frac{4ab + 2\sqrt{ab(c-b)} + 6\sqrt{c-b}}{4ab - c + b}$



Subject : Algebra  
Class : 4th Year, Scientific

Date: 2/4/1973  
Time: 8:30 - 10:00 a.m.

Solve all five questions :-

1. Solve the equation:  $x^2 + \frac{a^2 b^2}{x^2} = a^2 + b^2$ . (20 marks)

2. Solve the equation:  $x^3 + 7x^2 + 7x - 15 = 0$ . (20 marks)

3. Solve the two simultaneous equations:

$$x^2 - 3xy + y^2 + 1 = 0 \quad \dots\dots (1)$$

$$3x^2 - xy + 3y^2 = 13 \quad \dots\dots (2) \quad (20 \text{ marks})$$

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 210 miles. What time does it take? (20 marks)

5. P and Q are two stations 300 miles apart. Two trains start simultaneously from P and Q, each to the opposite station. The train from P reaches Q nine hours, the train from Q reaches P four hours after they meet. Find the rate at which each train travels. (20 marks)

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination

Subject : Algebra  
Class : 4th Year, Scientific

Date: 2/4/1973  
Time: 8:30 - 10:00 a.m.

Solve all five questions :-

1. Solve the equation:  $x^2 + \frac{a^2 b^2}{x} = a^2 + b^2$ . (20 marks)

2. Solve the equation:  $x^3 + 7x^2 + 7x - 15 = 0$ . (20 marks)

3. Solve the two simultaneous equations:

$$x^2 - 3xy + y^2 + 1 = 0 \quad \dots\dots (1)$$

$$3x^2 - xy + 3y^2 = 13 \quad \dots\dots (2) \quad (20 \text{ marks})$$

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 210 miles. What time does it take? (20 marks)

5. P and Q are two stations 300 miles apart. Two trains start simultaneously from P and Q, each to the opposite station. The train from P reaches Q nine hours, the train from Q reaches P four hours after they meet. Find the rate at which each train travels. (20 marks)

Date: 21/12/17  
Time: 10:30 - 12:00

Subject: Algebra  
Class: 1st Year

Solve all the questions :-

1. Solve the equation:  $x^2 + \frac{2}{x} = x^2 + 1$  (20 marks)

2. Solve the equation:  $x^2 + 7x + 12 = 0$  (20 marks)

3. Solve the two simultaneous equations:  
(1)  $x^2 - 3xy + y^2 + 1 = 0$

(2)  $3x^2 - 2xy + y^2 = 12$  (20 marks)

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 100 miles. Find the speed of the train. (20 marks)

5. P and Q are two stations 500 miles apart. The train starts simultaneously from P and Q, each for the opposite station. The train from P reaches Q nine hours, the train from Q reaches P four hours after they meet. Find the rate at which each train travels. (20 marks)

$x^2 - (a^2 + b^2)x + a^2b^2 = 0$

$\therefore x^2 - a^2 - b^2x + ab^2 = 0$

$\therefore x^2 - a^2 = 0$  or  $x^2 - b^2x + ab^2 = 0$   
 $\therefore x = \pm a$  and  $x = \pm b$

2.  $x^3 + 7x^2 + 7x - 15 = 0$  By trial, we see that  $x = -5$  is a root.

$\therefore (x+5)$  is a factor of  $(x^3 + 7x^2 + 7x - 15)$

$\therefore x^3 + 7x^2 + 7x - 15 = (x+5)(x^2 + 2x - 3) = (x+5)(x-1)(x+3) = 0$

$\therefore x = -5, -3$  and  $1$  are the roots.  
 $\therefore x = -5, -3, 1$  are the roots.

3.  $x^2 - 3xy + y^2 + 1 = 0$  ... multiply by 3:  
 $3x^2 - 3xy + 3y^2 + 3 = 0$

$x^2 - xy + 0y^2 = 12$  ... subtract from (2):  
 $2x^2 - 2xy + 3y^2 = -9$

$8xy = 16$   $\therefore xy = 2$

from (1) + (4):  $x^2 - xy = -1$   
adding:  $xy = 2$

$x^2 - 2xy + y^2 = 1$   $\therefore (x-y)^2 = 1$   $\therefore x-y = \pm 1$

$x^2 - 3xy + y^2 = -1$   
 $8xy = 16$

$x^2 + 2xy + y^2 = 3$   $\therefore (x+y)^2 = 3$   $\therefore x+y = \pm\sqrt{3}$

a.  $\begin{cases} x+y=3 \\ x-y=1 \end{cases}$   $\begin{cases} x+y=3 \\ x-y=-1 \end{cases}$   $\begin{cases} x+y=3 \\ x-y=1 \end{cases}$   $\begin{cases} x+y=3 \\ x-y=1 \end{cases}$

b.  $2x=7$   $2x=2$   $2x=-2$   $2x=-7$   
 $x=2\frac{1}{2}$   $x=1$   $x=-1$   $x=-2\frac{1}{2}$

$y=-1$   $y=2$   $y=-2$   $y=-1$

4. Let  $x = \frac{1}{t}$  ...

$\therefore x^2 - 2x + 1 = 0$  ...

...

Subject : Algebra  
Class : 4th Year, Scientific

Date: 2/4/1973  
Time: 8:30 - 10:00 a.m.

Solve all five questions :-

1. Solve the equation:  $x^2 + \frac{a^2 b^2}{x} = a^2 + b^2$ . (20 marks)

2. Solve the equation:  $x^3 + 7x^2 + 7x - 15 = 0$ . (20 marks)

3. Solve the two simultaneous equations:

$x^2 - 3xy + y^2 + 1 = 0$  ..... (1)

$3x^2 - xy + 3y^2 = 13$  ..... (2) (20 marks)

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 210 miles. What time does it take? (20 marks)

5. P and Q are two stations 300 miles apart. Two trains start simultaneously from P and Q, each to the opposite station. The train from P reaches Q nine hours, the train from Q reaches P four hours after they meet. Find the rate at which each train travels. (20 marks)

Subject : Algebra  
Class : 4th Year, Scientific

Date: 2/4/1973  
Time: 8:30 - 10:00 a.m.

Solve all five questions :-

1. Solve the equation:  $x^2 + \frac{a^2 b^2}{x} = a^2 + b^2$ . (20 marks)

2. Solve the equation:  $x^3 + 7x^2 + 7x - 15 = 0$ . (20 marks)

3. Solve the two simultaneous equations:

$x^2 - 3xy + y^2 + 1 = 0$  ..... (1)

$3x^2 - xy + 3y^2 = 13$  ..... (2) (20 marks)

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 210 miles. What time does it take? (20 marks)

5. P and Q are two stations 300 miles apart. Two trains start simultaneously from P and Q, each to the opposite station. The train from P reaches Q nine hours, the train from Q reaches P four hours after they meet. Find the rate at which each train travels. (20 marks)

Subject: Algebra  
 Class: 10th  
 Date: \_\_\_\_\_  
 Time: \_\_\_\_\_

Solve all five questions:-

(10 marks)

1. Solve the equation:  $x^2 + \frac{2x}{x-1} = x + \frac{2}{x-1}$

(10 marks)

2. Solve the equation:  $x^2 + 7x + 12 = 0$

3. Solve the two simultaneous equations:

(1)  $x^2 - 2xy + y^2 + 1 = 0$

(10 marks)

(2)  $x^2 - xy + y^2 = 13$

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 210 miles. Find the time it takes to travel 210 miles at the original speed.

5. P and Q are two stations 300 miles apart. Two trains start simultaneously from P and Q, each to the opposite station. The train from P reaches Q and returns, the train from Q reaches P four hours after they meet. Find the rate at which each train travels.

(10 marks)

Date: 2/4/2020  
 Time: 8:30 - 10:30

Solve all five questions:-

1. Solve the equation:  $x^2 + \frac{x^2}{x} = x + \frac{1}{x}$  (20 marks)

2. Solve the equation:  $x^2 + 7x + 12 = 0$  (20 marks)

3. Solve the two simultaneous equations:

$x^2 - 3xy + y^2 + 1 = 0$

$3x^2 - xy + 3y^2 = 13$

4. If a train travelled 5 miles an hour faster, it would take one hour less to travel 210 miles. Find the time it takes to travel 210 miles at the original speed.

5. P and Q are two stations 300 miles apart. Two trains start simultaneously from P and Q, each to the opposite station. The train from P reaches Q and returns, the train from Q reaches P four hours after they meet. Find the rate at which each train travels.

Year	2019	2020	2021
50	86	82	88
77	86	83	50
38	50	40	60
24	50	50	55
12	40	50	40
24	50	50	50
17	50	50	74

SHAMASH SECONDARY SCHOOL

Mid-Year Examination, January, 1973

Subject : Algebra  
Class : 4th Year

Date: 31/1/1973  
Time: 8:30 - 10:30 a.m.

Answer five questions only including 4, 5 and 6 :

1. (i) In a factory 'p' machines each produced 'q' articles and 'r' machines each produced 's' articles. State the total number of machines in the factory and hence find the average number of articles produced per machine. (7 marks)

(ii) Factorize completely :  
(a)  $6 - 5c - 6c^2$  (3 marks)

(b)  $3e - (e - f)^2 - 3f$  (3 marks)

(iii) If  $(h^7)(h^5) = h^x + h^4$ , find the value of x. (7 marks)

2. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ ; find the value of  $\frac{x}{y}$ . (7 marks)

(ii) Find the remainder when  $(2x^3 - 7x^2 + 5x - 5)$  is divided by  $(x - 3)$ . (6 marks)

(iii) Find the coefficient of  $x^3$  in the product of  $(2x^2 - x + y)$  and  $(x^2 - 2x - 1)$ . Find also the value of y, if in the product there is no term in x. (7 marks)

3. (i) In the product  $(1 - 2x - 2x^2)(1 + kx - 4x^2)$ , the coefficient of  $x^3$  is equal to 6. Find the value of k. (6 marks)

(ii) Find the two values of y which satisfy the equation :  
$$\frac{3y + 2}{2y + 3} = \frac{2y + 1}{y + 2}$$
 (7 marks)

(iii) If  $\frac{1}{a} + \frac{1}{b} = 4.6$  ..... (1)  
 $\frac{1}{a} - \frac{1}{b} = 1.4$  ..... (2)  
Calculate the values of 'a' and 'b'. (7 marks)

Answer the questions only involving 'a' and 'b' :

(1) In a factory 'p' machines each produced 'a' articles and 'q' machines each produced 'b' articles. State the total number of machines in the factory and hence find the average number of articles produced per machine.

(ii) Factorize completely :

(a)  $x^2 - 5x - 6$

(b)  $x^2 - 5x + 6$

(iii) If  $(x^2 + a)(x^2 + b) = x^4 + 5x^2 + 6$ , find the value of x.

(2) Given that  $\frac{2x-1}{x-2} = \frac{3x-1}{x-1}$ ; find the value of  $\frac{x}{x-1}$ .

(3) Find the remainder when  $(2x^2 - 3x + 5) \div (x - 2)$  is divided.

(4) Find the coefficient of  $x^2$  in the product of  $(x^2 + x + 2)$  and  $(x^2 - 3x - 1)$ . Find also the value of  $x$  if in the product there is no term in  $x$ .

(5) In the product  $(1 - 2x - 3x^2)(1 + 2x - 4x^2)$ , the coefficient of  $x^2$  is equal to 6. Find the value of  $x$ .

(6) Find the two values of y which satisfy the equation :

$\frac{1}{x} + \frac{2}{y} = \frac{1}{x} + \frac{1}{y}$

(7) If  $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$  then

(a)  $\frac{1}{x} = \frac{1}{z} - \frac{1}{y}$

(b)  $\frac{1}{y} = \frac{1}{z} - \frac{1}{x}$

Calculate the values of 'a' and 'b'.

4. (i) If for all values of x ,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
where 'A' and 'B' are numerical constants, find the values of 'A' and 'B'. (10 marks)

(ii) If  $s = \frac{m}{p}$  ,  $c = \frac{n}{p}$  and  $m^2 + n^2 = p^2$  , find a formula independent of m, n and p relating s and c. (10 marks)

5. (i) The hypotenuse of a right-angled triangle is  $(x + 5)$  cm long. The lengths of the other two sides are  $(x + 4)$  cm and  $(x - 3)$  cm respectively. Calculate the value of x. (10 marks)

(ii) When the expression  $(2x^3 - 3x^2 + ax + b)$  is divided by  $(x - 3)$  there is no remainder. When it is divided by  $(x - 2)$  the remainder is  $(-12)$ . Calculate the values of 'a' and 'b' and hence factorize the expression completely. (10 marks)

6. A cyclist and a motorist leave a town (A) at the same time to travel to a town (B) which is 45 miles away. The motorist whose average speed is 18 miles per hour more than the average speed of the cyclist, arrives at (B) exactly  $2\frac{1}{4}$  hours before the cyclist. Find the average speed of each. (20 marks)



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$$\frac{1}{2-x} + \frac{1}{x-2} = \frac{2-x-2x-2}{x-2}$$

$$\frac{2x-2x-2}{x-2} = \frac{-2}{x-2}$$

...  $x^2 = 1$  ...  $x = \pm 1$  ... [ ]

(ii)  $\frac{y+2}{y+1} = \frac{y+1}{y+2}$

$$(y+2)(y+2) = (y+1)(y+1)$$

$$y^2 + 4y + 4 = y^2 + 2y + 1$$

$$\Rightarrow y^2 = 1 \Rightarrow y = \pm 1$$

(iii)  $\frac{1}{a} + \frac{1}{b} = 4.6$  ...  $\frac{1}{a} - \frac{1}{b} = 1.4$  ...

$$a = \frac{1}{3}$$

$$b = \frac{1}{6}$$

4(i)  $(x-4)(x-2) \equiv (x-3)(x-3) - A(x-3) - B(x-4)$  ...

Now, let  $x=3$ , then  $0 = 0 - A(0) - B(-1) \Rightarrow B = -1$

let  $x=4$ , then  $0 = 0 - A(1) - 0 \Rightarrow A = -1$

(ii)  $\frac{1}{p} = \frac{1}{q} + \frac{1}{r}$  ...  $\left(\frac{q}{p}\right)^2 + \left(\frac{r}{p}\right)^2 = 1 \Rightarrow \frac{q}{p} + \frac{r}{p} = 1$

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Subject : Algebra  
Class : 4th Year

Date: 31/1/1973  
Time: 8:30 - 10:30 a.m.

Answer five questions only including 4, 5 and 6 :

1. (i) In a factory 'p' machines each produced 'q' articles and 'r' machines each produced 's' articles. State the total number of machines in the factory and hence find the average number of articles produced per machine. (7 marks)

(ii) Factorize completely :  
(a)  $6 - 5c - 6c^2$  (3 marks)  
(b)  $3e - (e - f)^2 - 3f$  (3 marks)

(iii) If  $(h^7)(h^5) = h^x + h^4$ , find the value of x. (7 marks)

2. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ ; find the value of  $\frac{x}{y}$ . (7 marks)

(ii) Find the remainder when  $(2x^3 - 7x^2 + 5x - 5)$  is divided by  $(x - 3)$ . (6 marks)

(iii) Find the coefficient of  $x^3$  in the product of  $(2x^2 - x + y)$  and  $(x^2 - 2x - 1)$ . Find also the value of y, if in the product there is no term in x. (7 marks)

3. (i) In the product  $(1 - 2x - 2x^2)(1 + kx - 4x^2)$ , the coefficient of  $x^3$  is equal to 6. Find the value of k. (6 marks)

(ii) Find the two values of y which satisfy the equation :  
$$\frac{3y + 2}{2y + 3} = \frac{2y + 1}{y + 2}$$
 (7 marks)

(iii) If  $\frac{1}{a} + \frac{1}{b} = 4.6$  ..... (1)  
 $\frac{1}{a} - \frac{1}{b} = 1.4$  ..... (2)  
Calculate the values of 'a' and 'b'. (7 marks)

Mid-Year Exam. in Algebra for 4th Year (Continued)

4. (i) If for all values of  $x$ ,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
 where 'A' and 'B' are numerical constants, find the values  
 of 'A' and 'B'. (10 marks)

(ii) If  $s = \frac{m}{p}$ ,  $c = \frac{n}{p}$  and  $m^2 + n^2 = p^2$ , find a formula  
 independent of  $m$ ,  $n$  and  $p$  relating  $s$  and  $c$ . (10 marks)

5. (i) The hypotenuse of a right-angled triangle is  $(x + 5)$  cm long.  
 The lengths of the other two sides are  $(x + 4)$  cm and  $(x - 3)$  cm  
 respectively. Calculate the value of  $x$ . (10 marks)

(ii) When the expression  $(2x^3 - 3x^2 + ax + b)$  is divided by  $(x - 3)$   
 there is no remainder. When it is divided by  $(x - 2)$  the  
 remainder is  $(-12)$ . Calculate the values of 'a' and 'b'  
 and hence factorize the expression completely. (10 marks)

6. A cyclist and a motorist leave a town (A) at the same time  
 to travel to a town (B) which is 45 miles away. The motorist  
 whose average speed is 18 miles per hour more than the  
 average speed of the cyclist, arrives at (B) exactly  
 $2\frac{1}{4}$  hours before the cyclist. Find the average speed of each.  
 (20 marks)

Subject : Algebra  
Class : 4th Year

Date: 31/1/1973  
Time: 8:30 - 10:30 a.m.

Answer five questions only including 4, 5 and 6 :

1. (i) In a factory 'p' machines each produced 'q' articles and 'r' machines each produced 's' articles. State the total number of machines in the factory and hence find the average number of articles produced per machine. (7 marks)

- (ii) Factorize completely :  
(a)  $6 - 5c - 6c^2$  (3 marks)  
(b)  $3e - (e - f)^2 - 3f$  (3 marks)

- (iii) If  $(h^7)(h^5) = h^x + h^4$ , find the value of x. (7 marks)

2. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ ; find the value of  $\frac{x}{y}$ . (7 marks)

- (ii) Find the remainder when  $(2x^3 - 7x^2 + 5x - 5)$  is divided by  $(x - 3)$ . (6 marks)

- (iii) Find the coefficient of  $x^3$  in the product of  $(2x^2 - x + y)$  and  $(x^2 - 2x - 1)$ . Find also the value of y, if in the product there is no term in x. (7 marks)

3. (i) In the product  $(1 - 2x - 2x^2)(1 + kx - 4x^2)$ , the coefficient of  $x^3$  is equal to 6. Find the value of k. (6 marks)

- (ii) Find the two values of y which satisfy the equation :  
$$\frac{3y + 2}{2y + 3} = \frac{2y + 1}{y + 2}$$
 (7 marks)

- (iii) If  $\frac{1}{a} + \frac{1}{b} = 4.6$  ..... (1)  
 $\frac{1}{a} - \frac{1}{b} = 1.4$  ..... (2)  
Calculate the values of 'a' and 'b'. (7 marks)

Mid-Year Exam. in Algebra for 4th Year (Continued)

4. (i) If for all values of  $x$ ,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
 where 'A' and 'B' are numerical constants, find the values  
 of 'A' and 'B'. (10 marks)

(ii) If  $s = \frac{m}{p}$ ,  $c = \frac{n}{p}$  and  $m^2 + n^2 = p^2$ , find a formula  
 independent of  $m$ ,  $n$  and  $p$  relating  $s$  and  $c$ . (10 marks)

5. (i) The hypotenuse of a right-angled triangle is  $(x + 5)$  cm long.  
 The lengths of the other two sides are  $(x + 4)$  cm and  $(x - 3)$  cm  
 respectively. Calculate the value of  $x$ . (10 marks)

(ii) When the expression  $(2x^3 - 3x^2 + ax + b)$  is divided by  $(x - 3)$   
 there is no remainder. When it is divided by  $(x - 2)$  the  
 remainder is  $(-12)$ . Calculate the values of 'a' and 'b'  
 and hence factorize the expression completely. (10 marks)

6. A cyclist and a motorist leave a town (A) at the same time  
 to travel to a town (B) which is 45 miles away. The motorist  
 whose average speed is 18 miles per hour more than the  
 average speed of the cyclist, arrives at (B) exactly  
 $2\frac{1}{4}$  hours before the cyclist. Find the average speed of each.  
 (20 marks)

Subject : Algebra  
Class : 4th Year

Date: 31/1/1973  
Time: 8:30 - 10:30 a.m.

Answer five questions only including 4, 5 and 6 :

1. (i) In a factory 'p' machines each produced 'q' articles and 'r' machines each produced 's' articles. State the total number of machines in the factory and hence find the average number of articles produced per machine. (7 marks)
- (ii) Factorize completely :  
(a)  $6 - 5c - 6c^2$  (3 marks)  
(b)  $3e - (e - f)^2 - 3f$  (3 marks)
- (iii) If  $(h^7)(h^5) = h^x + h^4$ , find the value of x. (7 marks)
- 
2. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ ; find the value of  $\frac{x}{y}$ . (7 marks)
- (ii) Find the remainder when  $(2x^3 - 7x^2 + 5x - 5)$  is divided by  $(x - 3)$ . (6 marks)
- (iii) Find the coefficient of  $x^3$  in the product of  $(2x^2 - x + y)$  and  $(x^2 - 2x - 1)$ . Find also the value of y, if in the product there is no term in x. (7 marks)
- 
3. (i) In the product  $(1 - 2x - 2x^2)(1 + kx - 4x^2)$ , the coefficient of  $x^3$  is equal to 6. Find the value of k. (6 marks)
- (ii) Find the two values of y which satisfy the equation :  
$$\frac{3y + 2}{2y + 3} = \frac{2y + 1}{y + 2}$$
 (7 marks)
- (iii) If  $\frac{1}{a} + \frac{1}{b} = 4.6$  ..... (1)  
 $\frac{1}{a} - \frac{1}{b} = 1.4$  ..... (2)  
Calculate the values of 'a' and 'b'. (7 marks)

Mid-Year Exam. in Algebra for 4th Year (Continued)

4. (i) If for all values of  $x$ ,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
 where 'A' and 'B' are numerical constants, find the values  
 of 'A' and 'B'. (10 marks)

(ii) If  $s = \frac{m}{p}$ ,  $c = \frac{n}{p}$  and  $m^2 + n^2 = p^2$ , find a formula  
 independent of  $m$ ,  $n$  and  $p$  relating  $s$  and  $c$ . (10 marks)

5. (i) The hypotenuse of a right-angled triangle is  $(x + 5)$  cm long.  
 The lengths of the other two sides are  $(x + 4)$  cm and  $(x - 3)$  cm  
 respectively. Calculate the value of  $x$ . (10 marks)

(ii) When the expression  $(2x^3 - 3x^2 + ax + b)$  is divided by  $(x - 3)$   
 there is no remainder. When it is divided by  $(x - 2)$  the  
 remainder is  $(-12)$ . Calculate the values of 'a' and 'b'  
 and hence factorize the expression completely. (10 marks)

6. A cyclist and a motorist leave a town (A) at the same time  
 to travel to a town (B) which is 45 miles away. The motorist  
 whose average speed is 18 miles per hour more than the  
 average speed of the cyclist, arrives at (B) exactly  
 $2\frac{1}{4}$  hours before the cyclist. Find the average speed of each.  
 (20 marks)



Mid-Year Exam. In Algebra for 1st Year (Continued)

1. (1) If  $x^2 + 4x + 4 = 0$  and  $x^2 + 2x + 1 = 0$  are the values of  $x^2 + 4x + 4$  and  $x^2 + 2x + 1$  respectively, find the values of  $x$  and  $y$  where  $A$  and  $B$  are numerical constants, find the values of  $A$  and  $B$ . (10 marks)

(2) If  $x^2 + 4x + 4 = 0$  and  $x^2 + 2x + 1 = 0$  are the values of  $x^2 + 4x + 4$  and  $x^2 + 2x + 1$  respectively, find the values of  $x$  and  $y$  where  $A$  and  $B$  are numerical constants, find the values of  $A$  and  $B$ . (10 marks)

2. (1) The hypotenuse of a right-angled triangle is  $(x + 5)$  cm long. The lengths of the other two sides are  $(x + 4)$  cm and  $(x - 7)$  cm respectively. Calculate the value of  $x$ . (10 marks)

(2) When the expression  $(x^2 + 4x + 4) - (x^2 + 2x + 1)$  is divided by  $(x - 2)$  there is no remainder, then  $x$  is divided by  $(x - 2)$  the remainder is  $(-1)$ . Calculate the value of  $x$  and  $y$  and hence factorize the expression completely. (10 marks)

3. A cyclist and a motorist leave a town (A) at the same time to travel to a town (B) which is 25 miles away. The motorist whose average speed is 15 miles per hour was 10 minutes ahead of the cyclist, arriving at (B) exactly 2 1/2 hours before the cyclist. Find the average speed of each. (10 marks)

10/10/1950

Date: 10/10/1950  
Time: 10:00

- 1- رتبة المثلث
- 2- حاصل الضرب
- 3- الآلة
- 4- القوة الخامسة
- 5- اكتب  $(x^2 + 4x + 4) - (x^2 + 2x + 1)$  + الباقي
- 6- الجذر التربيعي للعدد =
- 7- الجذر التربيعي للعدد =
- 8- اعداد الأولية
- 9- اعداد متساوية
- 10- اعداد زوجية واعداد فردية
- 11- اعداد المتساوية والراتية المتساوية
- 12- اعداد المتساوية
- 13- اعداد المتساوية
- 14- اعداد المتساوية
- 15- اعداد المتساوية

16- اعداد المتساوية  $(x, y, z)$  من العالم المتساوية  $(x, y, z)$

- 16- اعداد المتساوية
- 17- اعداد المتساوية
- 18- اعداد المتساوية
- 19- اعداد المتساوية
- 20- اعداد المتساوية

10% stock at 108

وأيضا السهم الذي يربح منه هذا النوع من الأسهم.

Subject: Algebra  
Class : 4th Year Secondary

Date: 25/2/1972  
Time: 8:00 - 10:00 a.m.

Answer all five questions:

1. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ , find the value of  $\frac{x}{y}$ . (10 marks)

(ii) When the expression  $(4x^3 - 15x^2 + ax + b)$  is divided by  $(x - 3)$  there is no remainder. When it is divided by  $(x - 1)$  the remainder is 6. Calculate the values of "a" and "b" and hence factor the expression completely. (10 marks)

2. In an English examination, three pupils A, B and C together were awarded a total of 215 marks. Pupil A had 15 more marks than pupil B who had  $1\frac{1}{2}$  times as many marks as pupil C. Calculate the number of marks awarded to each pupil. (20 marks)

3. (i) Solve the equations:  
 $2x^2 + xy - y^2 = 8$  ..... (1)  
 $3x + y = 7$  ..... (2) (10 marks)

(ii) If for all values of x,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
where A and B are numerical constants, find the values of A and B. (10 marks)

4. (i) Without using tables, find the values of:  
 $\left(\frac{49}{16}\right)^{\frac{3}{2}}$ ,  $(81)^{-\frac{3}{4}}$ ,  $\log_{10} \frac{1}{1000}$  (10 marks)

(ii) Compute the value of x by logarithms, arranging your work neatly:  
 $x = \sqrt[5]{\frac{(\sin 31^\circ 12')^3 (\cos 71^\circ 20')^2}{(1.002)^5 (50.07)^2}}$  (10 marks)

5. The sum of n terms of the arithmetic progression 2, 6, 10, .... is denoted by  $S_n$  and p has the value  $(S_n + 7)$

(i) Express  $S_n$  in terms of n and hence express p in terms of n. (3 marks)

(ii) Find the values of p when n = 1, 2 and 3 respectively. (6 marks)

(iii) Show that the three values of p found in (ii) are in geometric progression and find the common ratio of this progression. (5 marks)

Subject: Algebra  
Date: \_\_\_\_\_

1. (1) Given that  $\frac{1}{x} + \frac{1}{y} = 2$ , find the value of  $\frac{x+y}{xy}$ . (10 marks)

(2) The expression  $(x^2 + 1)(x^2 + 2)(x^2 + 3)$  is divided by  $(x^2 - 1)$ . Find the remainder. (10 marks)

2. In an arithmetic progression, the first term is 1 and the common difference is 2. Find the sum of the first 10 terms. (10 marks)

3. (1) Solve the simultaneous equations:  
(a)  $x + y = 7$   
(b)  $x^2 + xy + y^2 = 0$  (10 marks)

(2) If  $x$  and  $y$  are the roots of the equation  $x^2 - 3x + 2 = 0$ , find the value of  $x^2 + y^2$ . (10 marks)

4. (1) Express  $\frac{1}{x^2 - 1}$  in partial fractions. (10 marks)

(2) Solve the equation  $x^2 + 2x + 1 = 0$ . (10 marks)

5. (1) The sum of the first  $n$  terms of an arithmetic progression is 100. Find the value of  $n$ . (10 marks)

(2) The sum of the first  $n$  terms of a geometric progression is 100. Find the value of  $n$ . (10 marks)

(3) The sum of the first  $n$  terms of a harmonic progression is 100. Find the value of  $n$ . (10 marks)

*[Faint handwritten notes]*

1. (1) Given that  $\frac{1}{x} + \frac{1}{y} = 2$ , find the value of  $\frac{x+y}{xy}$ .  
 $\frac{1}{x} + \frac{1}{y} = 2$   
 $\frac{x+y}{xy} = 2$

(2) The expression  $(x^2 + 1)(x^2 + 2)(x^2 + 3)$  is divided by  $(x^2 - 1)$ . Find the remainder.  
 $(x^2 + 1)(x^2 + 2)(x^2 + 3) = (x^2 - 1)(x^2 + 2x + 3) + 4x^2 + 2$

2. In an arithmetic progression, the first term is 1 and the common difference is 2. Find the sum of the first 10 terms.  
 $S_n = \frac{n}{2}(2a + (n-1)d)$   
 $S_{10} = \frac{10}{2}(2(1) + (10-1)(2)) = 5(2 + 18) = 5(20) = 100$

3. (1) Solve the simultaneous equations:  
 $x + y = 7$   
 $x^2 + xy + y^2 = 0$   
 $y = 7 - x$   
 $x^2 + x(7-x) + (7-x)^2 = 0$   
 $x^2 + 7x - x^2 + 49 - 14x + x^2 = 0$   
 $x^2 - 7x + 49 = 0$

(2) If  $x$  and  $y$  are the roots of the equation  $x^2 - 3x + 2 = 0$ , find the value of  $x^2 + y^2$ .  
 $x^2 - 3x + 2 = 0$   
 $(x-1)(x-2) = 0$   
 $x = 1, 2$   
 $x^2 + y^2 = 1^2 + 2^2 = 5$

4. (1) Express  $\frac{1}{x^2 - 1}$  in partial fractions.  
 $\frac{1}{x^2 - 1} = \frac{A}{x-1} + \frac{B}{x+1}$   
 $1 = A(x+1) + B(x-1)$   
 $1 = Ax + A + Bx - B$   
 $1 = (A+B)x + (A-B)$   
 $A+B = 0$   
 $A-B = 1$   
 $2A = -1$   
 $A = -\frac{1}{2}$   
 $B = \frac{1}{2}$   
 $\frac{1}{x^2 - 1} = \frac{-\frac{1}{2}}{x-1} + \frac{\frac{1}{2}}{x+1}$

$$x^2 - 45x + 51 = 0 \quad \text{or} \quad (x-3)(x-17) = 0$$

$$\therefore x = 3 \quad \text{or} \quad x = 17$$

$$\therefore y = -2 \quad \text{Ans. 1} \quad y = 9 - 52 = -43 \quad \text{Ans. 2}$$

ii)  $(x-4)(x-2) \equiv (x-3)(x-5) - A(x-5) + B(x-4)$   
 since the quadratic has no  $x$  term,  $x = 0$   
 $\therefore (3-4)(3-2) \equiv 0 + 0 - A(3-5) + B(3-4)$   
 $\therefore -1 = 2A - B$   
 when  $x=4$  then  $(4-4)(4-2) \equiv (4-3)(4-5) - A(4-5) + B(4-4)$   
 $0 = -1 - A + 0$   $\therefore A = -1$

$\therefore A = -1$   
 $B = 1$   
 $\therefore (x-4)(x-2) \equiv (x-3)(x-5) - (x-5) + (x-4)$   
 $x^2 - 6x + 8 \equiv x^2 - (3+5)x + 15 + (-x+5) + (x-4)$   
 $x^2 - 6x + 8 \equiv x^2 - 8x + 16 - x + 5 + x - 4$   
 $x^2 - 6x + 8 \equiv x^2 - 8x + 16 - x + 5 + x - 4$   
 $3x + 30 = -1 \quad \therefore B = -1$   
 $3x + 48 = -1 \quad \therefore B = -1$

1. Let the number be  $(100a + 10b + c)$   
 $\therefore \dots$   
 $\therefore \dots$

$\therefore 2x^2 - 45x + 51 = 0$   
 $\therefore 5x^2 - 45x + 51 = 0$

$$(51)^7 = 10^8$$

$\log \sin 12^\circ = 7.7144$	$\log \cos 12^\circ = 7.5052$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log \sin 12^\circ = 7.1439$	$\log \cos 12^\circ = 7.0104$	$\log 1.002 = 2.4536$	$\log 50.07 = 3.4232$
$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log 1.002 = 0.0040$	$\log 50.07 = 3.3992$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$
$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log 1.002 = 0.0040$	$\log 50.07 = 3.3992$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$
$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log 1.002 = 0.0040$	$\log 50.07 = 3.3992$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$	$\log 1.002 = 0.0008$	$\log 50.07 = 1.6936$

$5 \log 1.002 = 0.0040$       or  $x = 8.915 \times 10^3$   
 $2 \log 50.07 = 3.3992$   
 $\log 1.002 = 0.0008$

(i)  $a_1 = 1, a_2 = 1, \dots, a_n = 1$   
 $\sum_{k=1}^n a_k = n$   
 $\sum_{k=1}^n k a_k = \frac{n(n+1)}{2}$

(ii) when  $n=1$ , then  $p = 2 \times 1 - 1 = 1$   
 $\text{and } p = 2 \times 1 - 1 = 1$   
 $\text{and } p = 2 \times 1 - 1 = 1$

(iii) let  $a_1, a_2, a_3, \dots, a_n$  be in A.P. since  $\left[ \frac{a_1 + a_n}{2} \right] = \frac{a_1 + a_n}{2} = 1$

Subject: Algebra  
Class : 4th Year Secondary

Date: 25/2/1972  
Time: 9:00 - 10:00 a.m.

Answer all five questions:

1. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ , find the value of  $\frac{x}{y}$ . (10 marks)

(ii) When the expression  $(4x^3 - 15x^2 + cx + b)$  is divided by  $(x - 3)$  there is no remainder. When it is divided by  $(x - 1)$  the remainder is 6. Calculate the values of "a" and "b" and hence factor the expression completely. (10 marks)

2. In an English examination, three pupils A, B and C together were awarded a total of 215 marks. Pupil A had 15 more marks than pupil B who had  $1\frac{1}{2}$  times as many marks as pupil C. Calculate the number of marks awarded to each pupil. (20 marks)

3. (i) Solve the equations:  

$$2x^2 + xy - y^2 = 8 \quad \dots\dots\dots (1)$$

$$3x + y = 7 \quad \dots\dots\dots (2)$$
 (10 marks)

(ii) If for all values of x,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
 where A and B are numerical constants, find the values of A and B. (10 marks)

4. (i) Without using tables, find the values of:  
 $\left(\frac{49}{16}\right)^{\frac{3}{2}}$ ,  $(81)^{-\frac{3}{4}}$ ,  $\log_{10} \frac{1}{1000}$  (10 marks)

(ii) Compute the value of x by logarithms, arranging your work neatly:  

$$x = \sqrt[5]{\frac{(\sin 31^\circ 12')^3 (\cos 71^\circ 20')^2}{(1.002)^5 (50.07)^2}}$$
 (10 marks)

5. The sum of n terms of the arithmetic progression 2, 6, 10, .... is denoted by  $S_n$  and p has the value  $(S_n + 7)$

(i) Express  $S_n$  in terms of n and hence express p in terms of n. (3 marks)

(ii) Find the values of p when n = 1, 2 and 3 respectively. (6 marks)

(iii) Show that the three values of p found in (ii) are in geometric progression and find the common ratio of this progression. (6 marks)

Subject: Algebra  
Class : 4th Year Secondary

Date: 25/2/1972  
Time: 3:00 - 10:00 a.m.

Answer all five questions:

1. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ , find the value of  $\frac{x}{y}$ . (10 marks)

(ii) When the expression  $(4x^3 - 15x^2 + ax + b)$  is divided by  $(x - 3)$  there is no remainder. When it is divided by  $(x - 1)$  the remainder is 6. Calculate the values of "a" and "b" and hence factor the expression completely. (10 marks)

2. In an English examination, three pupils A, B and C together were awarded a total of 215 marks. Pupil A had 15 more marks than pupil B who had  $1\frac{1}{2}$  times as many marks as pupil C. Calculate the number of marks awarded to each pupil. (20 marks)

3. (i) Solve the equations:  
 $2x^2 + xy - y^2 = 8$  ..... (1)  
 $3x + y = 7$  ..... (2) (10 marks)

(ii) If for all values of x,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
where A and B are numerical constants, find the values of A and B. (10 marks)

4. (i) Without using tables, find the values of:  
 $\left(\frac{49}{16}\right)^{\frac{3}{2}}$ ,  $(81)^{-\frac{3}{4}}$ ,  $\log_{10} \frac{1}{1000}$  (10 marks)

(ii) Compute the value of x by logarithms, arranging your work neatly:  
 $x = \sqrt[5]{\frac{(\sin 31^\circ 12')^3 (\cos 71^\circ 20')^2}{(1.002)^5 (50.07)^2}}$  (10 marks)

5. The sum of n terms of the arithmetic progression 2, 6, 10, .... is denoted by  $S_n$  and p has the value  $(S_n + 7)$ .

(i) Express  $S_n$  in terms of n and hence express p in terms of n. (3 marks)

(ii) Find the values of p when n = 1, 2 and 3 respectively. (6 marks)

(iii) Show that the three values of p found in (ii) are in geometric progression and find the common ratio of this progression. (5 marks)

Subject: Algebra  
Class : 4th Year Secondary

Date: 25/2/1972  
Time: 8:00 - 10:00 a.m.

Answer all five questions:

1. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ , find the value of  $\frac{x}{y}$ . (10 marks)

(ii) When the expression  $(4x^3 - 15x^2 + ax + b)$  is divided by  $(x - 3)$  there is no remainder. When it is divided by  $(x - 1)$  the remainder is 6. Calculate the values of "a" and "b" and hence factor the expression completely. (10 marks)

2. In an English examination, three pupils A, B and C together were awarded a total of 215 marks. Pupil A had 15 more marks than pupil B who had  $1\frac{1}{2}$  times as many marks as pupil C. Calculate the number of marks awarded to each pupil. (20 marks)

3. (i) Solve the equations:  
 $2x^2 + xy - y^2 = 8$  ..... (1)  
 $3x + y = 7$  ..... (2) (10 marks)

(ii) If for all values of x,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
where A and B are numerical constants, find the values of A and B. (10 marks)

4. (i) Without using tables, find the values of:  
 $\left(\frac{49}{16}\right)^{\frac{3}{2}}$ ,  $(81)^{-\frac{3}{4}}$ ,  ${}_{10}\log \frac{1}{1000}$  (10 marks)

(ii) Compute the value of x by logarithms, arranging your work neatly:  
 $x = \sqrt[5]{\frac{(\sin 31^\circ 12')^3 (\cos 71^\circ 20')^2}{(1.002)^5 (50.07)^2}}$  (10 marks)

5. The sum of n terms of the arithmetic progression 2, 6, 10, .... is denoted by  $S_n$  and p has the value  $(S_n + 7)$   
(i) Express  $S_n$  in terms of n and hence express p in terms of n. (3 marks)

(ii) Find the values of p when n = 1, 2 and 3 respectively. (6 marks)

(iii) Show that the three values of p found in (ii) are in geometric progression and find the common ratio of this progression. (6 marks)



Subject: Algebra  
Class : 4th Year Secondary

Date: 25/2/1972  
Time: 8:00 - 10:00 a.m.

Answer all five questions:

1. (i) Given that  $\frac{4x - y}{x - 4y} = 2$ , find the value of  $\frac{x}{y}$ . (10 marks)

(ii) When the expression  $(4x^3 - 15x^2 + ax + b)$  is divided by  $(x - 3)$  there is no remainder. When it is divided by  $(x - 1)$  the remainder is 6. Calculate the values of "a" and "b" and hence factor the expression completely. (10 marks)

2. In an English examination, three pupils A, B and C together were awarded a total of 215 marks. Pupil A had 15 more marks than pupil B who had  $1\frac{1}{2}$  times as many marks as pupil C. Calculate the number of marks awarded to each pupil. (20 marks)

3. (i) Solve the equations:  
 $2x^2 + xy - y^2 = 8$  ..... (1)  
 $3x + y = 7$  ..... (2) (10 marks)

(ii) If for all values of x,  
 $(x - 4)(x - 2) = (x - 3)(x - 5) - A(x - 3) - B(x - 4)$   
where A and B are numerical constants, find the values of A and B. (10 marks)

4. (i) Without using tables, find the values of:  
 $\left(\frac{49}{16}\right)^{\frac{3}{2}}$ ,  $(81)^{-\frac{3}{4}}$ ,  $\log_{10} \frac{1}{1000}$  (10 marks)

(ii) Compute the value of x by logarithms, arranging your work neatly:  
 $x = \sqrt[5]{\frac{(\sin 31^\circ 12')^3 (\cos 71^\circ 20')^2}{(1.002)^5 (50.07)^2}}$  (10 marks)

5. The sum of n terms of the arithmetic progression 2, 6, 10, .... is denoted by  $S_n$  and p has the value  $(S_n + 7)$   
(i) Express  $S_n$  in terms of n and hence express p in terms of n. (3 marks)

(ii) Find the values of p when n = 1, 2 and 3 respectively. (6 marks)

(iii) Show that the three values of p found in (ii) are in geometric progression and find the common ratio of this progression. (5 marks)

Find the value of x

Subject: Algebra  
Class: 10th

Factor the following:

(1)  $x^2 - 5x + 6 = 0$  Find the value of x

(2)  $x^2 + 7x + 12 = 0$  Find the value of x

(3)  $x^2 - 10x + 25 = 0$  Find the value of x

Write the equation:

(4)  $2x^2 + x - 7 = 0$   
(5)  $3x^2 + 5x + 2 = 0$

Find the value of x

(6)  $(x-1)(x-2) = (x-3)(x-4)$  Find the value of x

Without using tables, find the value of

(7)  $\frac{1}{\sqrt{2}} \cdot \frac{1}{\sqrt{3}}$

Compare the value of x by rationalizing

(8)  $\sqrt{\frac{3}{5}}$  and  $\sqrt{\frac{5}{3}}$

The sum of two numbers is 10 and their product is 20. Find the numbers.

(9) Find the value of x when  $x^2 + 5x + 6 = 0$

(10) In the figure, find the value of x

(11) Find the value of x when  $x^2 - 10x + 25 = 0$

Subject: Algebra  
 class: 4th Year, Secondary

Date: 21/10/2022  
 Time: 8:00 - 10:30 a.m.

Answer all questions:

1. (i) Without using tables, find the values of:

$$\left(\frac{49}{16}\right)^{\frac{3}{2}}, (81)^{-\frac{1}{4}}, \log_{10} \frac{1}{100} \quad (12 \text{ marks})$$

(ii) Solve the equation:

$$\frac{\sqrt{2+x} + \sqrt{2-x}}{\sqrt{2+x} - \sqrt{2-x}} = 2 \quad (13 \text{ marks})$$

2. Find the values of  $x$  from the following equations:

$$(i) 2(\log x)^2 + 5(\log x) - 3 = 0 \quad (13 \text{ marks})$$

$$(ii) 2x^{\frac{2}{3}} + 5x^{\frac{1}{3}} - 3 = 0 \quad (12 \text{ marks})$$

3. Solve the equation:

$$(6)^{x+1} (5)^{5x} = (1125) (2)^{3x-1} \quad (25 \text{ marks})$$

4. Compute by logarithms, arranging your work neatly:

$$N = \sqrt[7]{\frac{(2.40 \times 10^{-2})^3 (2.11 \times 10^{-1})^2}{(10.6)^2 (2.004)^2}} \quad (25 \text{ marks})$$

$$1. (i) \left(\frac{1}{16}\right)^{\frac{1}{4}} = \frac{1}{2} \quad (4 \text{ marks})$$

$$(9)^{\frac{1}{2}} = (3)^2 = 3 \quad (4 \text{ marks})$$

$$\log \frac{1}{100} = \log 10^{-2} = -2 \quad (4 \text{ marks})$$

$$(ii) \frac{\sqrt{2+x} + \sqrt{2-x}}{\sqrt{2+x} - \sqrt{2-x}} = \frac{-\sqrt{2-x} + \sqrt{2+x}}{2+x - (2-x)}$$

$$= \frac{2x + 2\sqrt{2+x} + \sqrt{2-x} + x}{2x} = \frac{4 + 2\sqrt{2+x} + \sqrt{2-x}}{2x}$$

$$\therefore \sqrt{4-x^2} = 2x \Rightarrow 4-x^2 = 4x^2 \Rightarrow 5x^2 = 4 \Rightarrow x = \pm \frac{2}{\sqrt{5}}$$

$$5x^2 - 4 = 0 \Rightarrow x = \frac{2}{\sqrt{5}} \quad (3 \text{ marks})$$

$x=0$  is to be rejected since it does not satisfy the original equation.

$$(i) 2(\log x)^2 + 5(\log x) - 3 = 0 \Rightarrow [2(\log x) - 1][\log x + 3] = 0$$

$$\therefore 2 \log x - 1 = 0 \Rightarrow \log x = \frac{1}{2} \Rightarrow x = 10^{\frac{1}{2}} = \sqrt{10} = 3.16227766$$

$$\text{or } \log x + 3 = 0 \Rightarrow \log x = -3 \Rightarrow x = 10^{-3} = \frac{1}{1000} = 0.001 \quad (13 \text{ marks})$$

$$(ii) 2x^{\frac{1}{2}} + 5x^{\frac{1}{3}} - 3 = 0 \Rightarrow (x^{\frac{1}{2}})^2 + 5(x^{\frac{1}{3}}) - 3 = 0$$

$$\therefore (2x^{\frac{1}{2}} - 1)(x^{\frac{1}{2}} + \frac{1}{2}) + 5x^{\frac{1}{3}} - 3 = 0 \Rightarrow x^{\frac{1}{2}} = \frac{1}{2} \Rightarrow x = \frac{1}{4} = 0.25$$

$$\text{or } x = -3 \Rightarrow x = -27 \quad (12 \text{ marks})$$

$$3. (6.2)^x = (11 \times 3)^x \quad \text{or } (2 \times 3)^x (2 \times 3)^x = (11 \times 3)^x$$

$$\frac{(2^{x+1})(3^{x+1})(2^x)(3^x)}{(5^3 \times 3^3)(2^{2x})} = 1 \quad \text{or } \frac{(2^{2x+1})(3^{2x+1})}{(5^3 \times 3^3)(2^{2x})} = 1$$

$$\text{or } (2^{2x+1})(3^{2x+1})(5^{-3})(3^{-3}) = 1 \quad \text{or } (2^{2x+1})(3^{2x+1}) = (5^3)(3^3)$$

$$2 \log 2 - 2x \log 2 + x \log 3 - \log 3 + 2x \log 3 - 3 \log 3 = 0$$

$$x(\log 3 + 2 \log 3 - 2 \log 2) = \log 3 + 3 \log 3 - 2 \log 2$$

$$\therefore x = \frac{\log 3 + 3 \log 3 - 2 \log 2}{\log 3 + 2 \log 3 - 2 \log 2} = 1 \quad \text{Ans.} \quad (25 \text{ marks})$$

$$4. \sqrt[7]{x} = \sqrt{\frac{(\sin 40^\circ 23')^2 (\cos 71^\circ 41')^2}{(10.03)^3 (2.004)^2}}$$

$\log \sin 40^\circ 23' = 7.8116$	$2 \log \sin 40^\circ 23' = 15.6232$	$3 \log 10.03 = 3.0636$
$\log \cos 71^\circ 41' = 7.4973$	$2 \log \cos 71^\circ 41' = 14.9946$	$2 \log 2.004 = 0.6018$
$\log 10.03 = 1.0012$	$\log \text{Num} = 3.4228$	$\log \text{Den} = 3.6654$
$\log 2.004 = 0.3018$	$\log \text{Den} = 0.6072$	
	$7 \log x = 8.8222$	
	$\log x = 1.26031$	
	$x = 18.311$	

$$x = 0.4155 \quad (25 \text{ marks})$$

$$1. (i) \frac{a - \frac{b}{c - \frac{1}{a}}}{a - \frac{b}{c - \frac{1}{a}}} = \frac{a - \frac{b}{\frac{ac-1}{a}}}{a - \frac{b}{\frac{ac-1}{a}}}$$

$$= \frac{3a - \frac{5}{2}b - \frac{c}{2}}{a - \frac{ab}{ac-1}} = \frac{3a - \frac{5}{2}b - \frac{c}{2}}{\frac{a^2c - a - ab}{ac-1}} = \frac{(3a - \frac{5}{2}b - \frac{c}{2})(ac-1)}{a(ac-1-b)}$$

$$= \frac{(6a - 5b - c)(ac-1)}{2a(ac-1-b)} = \frac{(c + \frac{5}{2} - 0)(0-0)}{2(1)(0-1+1)} = \frac{-\frac{17}{2}}{-1} = \frac{17}{2} = 8\frac{1}{2} \text{ Ans.}$$

$$(ii) \frac{x}{1 + \frac{x}{1-x + \frac{x}{1+x}}} = \frac{1+x+x^2}{1+3x+3x^2+2x^3} = \frac{x}{1 + \frac{x}{\frac{1-x^2+x}{1+x}}} \cdot \frac{1+x+x^2+2x^3}{1+x+x^2}$$

$$= \frac{x}{1 + \frac{x(1+x)}{1+x-x^2}} \cdot \frac{1+3x+3x^2+2x^3}{1+x+x^2} = \frac{x}{\frac{1+x-x^2+x+x^2}{1+x-x^2}} \cdot \frac{1+3x+3x^2+2x^3}{1+x+x^2}$$

$$= \frac{x(1+x-x^2)}{1+2x} \cdot \frac{1+3x+3x^2+2x^3}{1+x+x^2} = \frac{x(1+x-x^2)}{1+2x} \cdot \frac{(1+2x)(1+x+x^2)}{1+x+x^2}$$

$$= x(1+x-x^2) \text{ Ans.}$$

$$2. (i) (a-b)x + (a+b)y = 2(a^2-b^2) \dots \dots \dots (1) \quad \text{multiply (1) by } b \text{ and (2) by } (a+b)$$

$$ax - by = a^2 + b^2 \dots \dots \dots (2)$$

$$\text{add (1) + (2): } (2a-b)x + ay = 3a^2 - b^2 \dots \dots \dots (3)$$

$$\text{Subtract: } -bx + (a+3b)y = a^2 - 3b^2 \dots \dots \dots (4)$$

$$b(a-b)x + b(a+b)y = 2b(a^2-b^2) \dots \dots \dots (3)$$

$$(a+b)x - b(a+b)y = (a+b)(a^2-b^2) \dots \dots \dots (4)$$

$$\text{add: } (a-b)(a+b)x = 2ab - 3b^2 + a^2 + ab^2 + a^2b + b^3$$

$$(a^2 + 2ab - b^2)x = a^2 + 3ab + ab^2 - b^2$$

$$x = \frac{a^2 + 3ab + ab^2 - b^2}{a^2 + 2ab - b^2} = \frac{(a+b)(a^2 + 2ab - b^2)}{a^2 + 2ab - b^2} = a+b$$

$$\text{Subtract (1) by (2) } (a-b)x + (a+b)y - (ax - by) = 2(a^2-b^2) - (a^2+b^2) = by \text{ or } by = b(a-b)$$

$$y = a-b \text{ Ans.}$$

$$(ii) \frac{x^2}{x-3} + \frac{2x+1}{x+4} = \frac{4x+13}{x+1} \quad \& \quad \frac{x-3+1}{x-3} + \frac{3(x-4)+1}{x-4} = \frac{4(x+1)+3}{x+1}$$

$$\text{or } 1 + \frac{1}{x-3} + 2 + \frac{1}{x+4} = 4 + \frac{3}{x+1} \quad \text{or } \frac{x-4+x-3}{(x-3)(x-4)} = \frac{3}{x+1}$$

$$\frac{2x-7}{(x-3)(x-4)} = \frac{3}{x+1} \quad \text{or } (2x-7)(x+1) = 3(x-3)(x-4)$$

$$2x^2 - 5x - 7 = 3(x^2 - 7x + 12) \quad \text{or } 2x^2 - 5x - 7 = 3x^2 - 21x + 36$$

$$7x^2 - 58x + 115 = 0 \quad \text{or } (7x-23)(x-5) = 0$$

$$\therefore x = 5 \quad \text{Ans. (1)} \\ x = \frac{23}{7} \quad \text{Ans. (2)}$$

3(i)  $6x^3 - 13x^2 + x + 2 = 0$  By trial+error when  $x = 2$  the equation is satisfied  $\therefore (x-2)$  is a factor of the L.H.S.

$$\therefore (x-2)(6x^2 - x - 1) = 0 \quad \text{or } (x-2)(3x+1)(2x-1) = 0$$

$$\therefore \begin{matrix} x=2 & \text{Ans. 1} & x=2 \\ x=-\frac{1}{3} & \text{Ans. 2} & x=-\frac{1}{3} \\ x=\frac{1}{2} & \text{Ans. 3} & x=\frac{1}{2} \end{matrix}$$

$$(ii) \quad x^4 + x^2y^2 + y^4 = 2923 \quad \dots (1)$$

$$x^2 - xy + y^2 = 37 \quad \dots (2)$$

$$\text{dividing (2) by (1): } x^2 + xy + y^2 = 79 \quad \dots (3)$$

$$\text{subtract (2) from (3): } 2xy = 42 \quad \text{or } xy = 21 \quad \dots (4)$$

$$\text{add (3) + (4): } x^2 + 3xy + y^2 = 100 \quad \text{or } (x+y)^2 = 100$$

$$\text{or } x+y = \pm 10 \quad \dots (5)$$

$$\text{subtract (4) from (2): } x^2 - xy + y^2 = 16 \quad \text{or } (x-y)^2 = 16$$

$$\text{or } x-y = \pm 4 \quad \dots (6) \quad \text{Combining (5) + (6):}$$

$$\begin{matrix} x+y=10 & | & x+y=10 & | & x+y=-10 & | & x+y=-10 \\ x-y=4 & | & x-y=-4 & | & x-y=4 & | & x-y=-4 \end{matrix}$$

$$\begin{matrix} 2x=14 & & 2x=6 & & 2x=-6 & & 2x=-14 \end{matrix}$$

$$\begin{matrix} x=7 & | & x=3 & | & x=-3 & | & x=-7 \\ y=7 & | & y=7 & | & y=-7 & | & y=-3 \end{matrix}$$

4. Let the time now be  $x$  minutes after 5 o'clock  
 after 10 minutes the two hands of the watch  
 will coincide with each other. Find then  
 the minute hand will have moved  $(x+10)$   
 divisions after the mark of 12. As to  
 the hour hand it will have moved  $\frac{x+10}{12}$   
 divisions beyond the mark of 5



$$\therefore 25 + \frac{x+10}{12} = x+10 \quad \text{or} \quad 300 + x+10 = 12x+120 \quad \text{or} \quad 11x = 190$$

$$\therefore x = \frac{190}{11} = 17\frac{3}{11} \quad \therefore \text{the time now is } 17\frac{3}{11} \text{ minutes after five}$$

Ans.

5. Let the speed of the man be  $x$  miles/hr.

$$\therefore \frac{108}{x} = \text{No. of hrs. in the 1st case}$$

$$\therefore \frac{108}{x+2} = \frac{108}{x} - 4\frac{1}{2} \quad \therefore (2x)(108) = 2(x+2)(108) - 9x(x+2)$$

$$\therefore 216x = 216(x+2) - 9x^2 - 18x \quad \text{or} \quad 216x = 216x + 432 - 9x^2 - 18x$$

$$\therefore 9x^2 + 18x - 432 = 0 \quad \text{or} \quad x^2 + 2x - 48 = 0$$

$$\therefore x^2 + 2x - 48 = 0 \quad \therefore (x-6)(x+8) = 0 \quad \therefore x = 6 \text{ miles/hr. (Ans.)}$$

$x = -8$  is to be rejected.





$$13C = 11X = 13C$$

$$\frac{100}{27x} = \dots$$

$$\dots$$

$$\dots$$

$$\dots$$

$$\dots$$

Date: 17/1/11  
 Page: 813-1111

Answer all four questions.

1. Solve simultaneously:

$$x^2 - 2xy + y^2 = 1 \quad (1)$$

$$3x^2 - xy + 3y^2 = 13 \quad (2)$$

2. Express in the simplest form:

$$(i) \frac{y-3}{x^2-(y-3)^2} + \frac{3-x}{y^2-(3-x)^2} + \frac{x-y}{z^2-(x-y)^2} \quad (15 \text{ marks})$$

$$(ii) \frac{(9^n - 3^2 - \frac{1}{3^{-n}}) - 27}{3^{2n} \cdot 9} \quad (15 \text{ marks})$$

3. A and B are two heavy lorries. On one gallon of fuel, B travels  $\frac{1}{4}$  mile further than A.

On a day when A travels 76 miles and B travels 70 miles, it is found that A has used one gallon more of fuel than B. Calculate the number of miles each lorry travels on one gallon of fuel. (10 marks)

4. If  $x+y=a$  and  $x-y=b$ , prove that:

$$x^4 - 4x^2y^2 + y^4 = \frac{1}{16}(9a^2 - 5b^2)(9b^2 - 5a^2) \quad (10 \text{ marks})$$

at least 5th Quarter Exam in Algebra  
 4th year 12/3/17

1.  $x^2 - 3xy + y^2 + 1 = 0$  ... multiply by 2:  
 $2x^2 - 6xy + 2y^2 + 2 = 0$   
 $2x^2 - 4xy + 2y^2 = -2$   
 subtract eqn from (1):  $-2xy + 2y^2 = -2$   
 $-xy + y^2 = -1$   
 $xy - y^2 = 1$

combining eqn with (1):  $x^2 + 2xy + y^2 - 5xy + 1 = 0$  or  
 $(x+y)^2 - 5xy + 1 = 0$  ...  $(x+y)^2 = 5xy - 1$   
 and (1):  $x^2 - 3xy + y^2 - xy + 1 = 0$  or  $(x-y)^2 - 4xy + 1 = 0$  ...  $(x-y)^2 = 4xy - 1$

$x + y = 3$	$x + y = -1$	$x + y = 1$	$x + y = -3$
$x - y = 1$	$x - y = -1$	$x - y = 1$	$x - y = -1$
$x = 2$	$x = 0$	$x = 2$	$x = 0$
$y = 1$ (1)	$y = -1$ (2)	$y = -1$ (3)	$y = -1$ (4)

2. (i)  $\frac{b-c}{a^2-(b-c)^2} + \frac{c-a}{b^2-(c-a)^2} + \frac{a-b}{c^2-(a-b)^2}$   
 $= \frac{b-c}{(a+b-c)(a+b+c)} + \frac{c-a}{(b+c-a)(b+c+a)} + \frac{a-b}{(c+a-b)(c+a+b)}$   
 $= \frac{(b-c)(b+c+a) + (c-a)(a+b+c) + (a-b)(a+b+c)}{(a+b-c)(a+b+c)(b+c+a)}$   
 $= \frac{b^2+bc-ab-bc-c^2+ac+ac-bc+c^2-a^2+ab-ab+a^2+ab-ac-ac-b^2+bc}{(a+b-c)(a+b+c)(b+c+a)}$   
 $= \frac{0}{1} = 0$  Ans.

(ii)  $\frac{3^{\frac{1}{2}} \cdot 3^{\frac{1}{3}} \cdot 3^{\frac{1}{6}}}{3^{\frac{1}{2} + \frac{1}{3} + \frac{1}{6}}} = \frac{3^{\frac{1}{2} + \frac{1}{3} + \frac{1}{6}}}{3^{\frac{1}{2} + \frac{1}{3} + \frac{1}{6}}} = \frac{3^{\frac{3+2+1}{6}}}{3^{\frac{3+2+1}{6}}} = \frac{3^{\frac{6}{6}}}{3^{\frac{6}{6}}} = \frac{3^1}{3^1} = 1$  Ans.

$$= x + \frac{1}{4} \text{ gallon B} \dots$$

$$= \frac{76}{x} \text{ gallons A} \dots = \frac{76}{x + \frac{1}{4}} = 1$$

$$\text{or } \frac{76}{x} - \frac{76}{x + \frac{1}{4}} = 1 \text{ or } 76(4x+1) - 76x = x(4x+1)$$

$$304x + 76 - 76x = 4x^2 + x \text{ or } 4x^2 - 3x - 76 = 0$$

$$(4x-13)(x+4) = 0 \text{ or } x = -4 \text{ inadmissible or}$$

$$x = \frac{13}{4} = 4 \frac{1}{4} \text{ gallons A and } 3 \frac{1}{4} \text{ gallons B}$$

$$\text{or } x + \frac{1}{4} = \frac{13}{4} + \frac{1}{4} = 3 \frac{1}{2} \text{ gallons}$$

$$4. \text{ Let } x = a, y = b \text{ then } x^4 - 4x^2y^2 + y^4 = \frac{1}{16}(9a^2 - 5b^2)(9b^2 - 5a^2)$$

$$xy = \frac{(x^2 - y^2)^2 - (x^2 + y^2)^2}{4}$$

$$\text{Now } x^4 - 4x^2y^2 + y^4 = x^4 + y^4 - 4x^2y^2 = (x^2 + y^2)^2 - (2xy)^2$$

$$= (x^2 + y^2 + 2xy)(x^2 + y^2 - 2xy) = (a^2 + b^2 + 2ab)(a^2 + b^2 - 2ab)$$

$$= \left[ a^2 + \frac{5}{4}(a^2 - b^2) \right] \left[ b^2 - \frac{5}{4}(a^2 - b^2) \right] = \frac{a^2 + 5a^2 - 5b^2}{4} \left[ \frac{4b^2 - 5a^2 + 5b^2}{4} \right]$$

$$= \frac{1}{16} [9a^2 - 5b^2][9b^2 - 5a^2] \text{ A.E.D.}$$

3rd Quarter Examination, March 1972

Subject: Algebra  
Class : 4th Year, SecondaryDate: 17/3/1972  
Time: 8:30 - 10:00 a.m.

Answer all four questions :

1. Solve simultaneously:

$$x^2 - 3xy + y^2 + 1 = 0 \quad \dots (1)$$

$$3x^2 - xy + 3y^2 = 13 \quad \dots (2)$$

(25 marks)

2. Express in the simplest form:

$$(i) \frac{y-z}{x^2 - (y-z)^2} + \frac{z-x}{y^2 - (z-x)^2} + \frac{x-y}{z^2 - (x-y)^2}$$

(15 marks)

$$(ii) \frac{(9^n \times 3^2 \times \frac{1}{3^{-n}}) - 27^n}{3^{3n} \times 9}$$

(15 marks)

3. A and B are two heavy lorries. On one gallon of fuel, B travels  $\frac{1}{4}$  mile further than A. On a day when A travels 76 miles and B travels 75 miles, it is found that A has used one gallon more of fuel than B. Calculate the number of miles each lorry travels on one gallon of fuel.

(25 marks)

4. If  $x + y = a$  and  $x - y = b$ , prove that:

$$x^4 - 47x^2y^2 + y^4 = \frac{1}{16} (9a^2 - 5b^2)(9b^2 - 5a^2)$$

(20 marks)

Subject: Algebra  
Class : 4th Year, Secondary

Date: 19/1/1972  
Time: 8:30 - 11:00 a.m.

Solve all questions:

1. (i) Simplify : 
$$a - \frac{[b - c - \{2a - 2b - \frac{1}{2}(3c - b)\}]}{a - \frac{b}{c - \frac{1}{a}}}$$

Evaluate the expression when  $a = 1$ ,  $b = -\frac{1}{2}$ ,  $c = 0$  (10 marks)

(ii) Simplify: 
$$\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}} \div \frac{1 + x + x^2}{1 + 3x + 3x^2 + 2x^3}$$
 (10 marks)

2. (i) Solve for x and y the two simultaneous equations:

$$(a - b)x + (a + b)y = 2(a^2 - b^2) \dots\dots (1)$$

$$ax - by = a^2 + b^2 \dots\dots (2)$$

(10 marks)

(ii) Solve the equation  $\frac{x - 2}{x - 3} + \frac{3x - 11}{x - 4} = \frac{4x + 13}{x + 1}$  (10 marks)

3. (i) Solve the equation:  $6x^3 - 13x^2 + x + 2 = 0$  (10 marks)

(ii) Solve simultaneously:  $x^4 + x^2y^2 + y^4 = 2923 \dots\dots (1)$   
 $x^2 - xy + y^2 = 37 \dots\dots (2)$  (10 marks)

4 The time now is between 5 and 6 and in 20 minutes the minute hand will be as much ahead of the hour hand as it is now behind it. Find the time now. (20 marks)

5. A man travels 108 miles, and finds that he could have made the journey in  $4\frac{1}{2}$  hours less had he travelled 2 miles an hour faster. At what rate did he travel? (20 marks)

Subject: Algebra  
Class : 4th Year, Secondary

Date: 19/1/1972  
Time: 8:30 - 11:00 a.m.

Solve all questions:

1. (i) Simplify : 
$$a - \frac{[b - c - \{2a - 2b - \frac{1}{2}(3c - b)\}]}{a - \frac{b}{c - \frac{1}{a}}}$$

Evaluate the expression when  $a = 1$ ,  $b = -\frac{1}{2}$ ,  $c = 0$  (10 marks)

(ii) Simplify: 
$$\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}} \div \frac{1 + x + x^2}{1 + 3x + 3x^2 + 2x^3}$$
 (10 marks)

2. (i) Solve for x and y the two simultaneous equations:

$$(a - b)x + (a + b)y = 2(a^2 - b^2) \dots\dots (1)$$

$$ax - by = a^2 + b^2 \dots\dots (2) \quad (10 \text{ marks})$$

(ii) Solve the equation  $\frac{x-2}{x-3} + \frac{3x-11}{x-4} = \frac{4x+13}{x+1}$  (10 marks)

3. (i) Solve the equation:  $6x^3 - 13x^2 + x + 2 = 0$  (10 marks)

(ii) Solve simultaneously:  $x^4 + x^2y^2 + y^4 = 2923 \dots\dots (1)$   
 $x^2 - xy + y^2 = 37 \dots\dots (2)$  (10 marks)

4. The time now is between 5 and 6 and in 20 minutes the minute hand will be as much ahead of the hour hand as it is now behind it. Find the time now. (20 marks)

5. A man travels 108 miles, and finds that he could have made the journey in  $4\frac{1}{2}$  hours less had he travelled 2 miles an hour faster. At what rate did he travel? (20 marks)

Subject: Algebra  
Class : 4th Year, Secondary

Date: 19/1/1972  
Time: 8:30 - 11:00 a.m.

Solve all questions:

1. (i) Simplify : 
$$a - \left[ b - c - \left\{ 2a - 2b - \frac{1}{2}(3c - b) \right\} \right]$$

$$a - \frac{b}{c - \frac{1}{a}}$$

Evaluate the expression when  $a = 1$ ,  $b = -\frac{1}{2}$ ,  $c = 0$ . (10 marks)

(ii) Simplify: 
$$\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}} \div \frac{1 + x + x^2}{1 + 3x + 3x^2 + 2x^3}$$
 (10 marks)

2. (i) Solve for x and y the two simultaneous equations:

$$(a - b)x + (a + b)y = 2(a^2 - b^2) \dots\dots (1)$$

$$ax - by = a^2 + b^2 \dots\dots (2)$$

(10 marks)

(ii) Solve the equation  $\frac{x-2}{x-3} + \frac{3x-11}{x-4} = \frac{4x+13}{x+1}$  (10 marks)

3. (i) Solve the equation:  $6x^3 - 13x^2 + x + 2 = 0$  (10 marks)

(ii) Solve simultaneously:  $x^4 + x^2y^2 + y^4 = 2923 \dots (1)$   
 $x^2 - xy + y^2 = 37 \dots\dots (2)$  (10 marks)

4. The time now is between 5 and 6 and in 20 minutes the minute hand will be as much ahead of the hour hand as it is now behind it. Find the time now. (20 marks)

5. A man travels 108 miles, and finds that he could have made the journey in  $4\frac{1}{2}$  hours less had he travelled 2 miles an hour faster. At what rate did he travel? (20 marks)

Subject: Algebra  
Class : 4th Year, Secondary

Date: 19/1/1972  
Time: 8:30 - 11:00 a.m.

Solve all questions:

1. (i) Simplify : 
$$a - \frac{b - c - \left\{ 2a - 2b - \frac{1}{2}(3c - b) \right\}}{c - \frac{1}{a}}$$

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$$(x + \frac{1}{2}) = a \Rightarrow x + \frac{1}{2} = a \Rightarrow x = a - \frac{1}{2}$$

$$(x - \frac{1}{2}) = b \Rightarrow x - \frac{1}{2} = b \Rightarrow x = b + \frac{1}{2}$$

$$\therefore (x + \frac{1}{2}) = a \Rightarrow x + \frac{1}{2} = a \Rightarrow x = a - \frac{1}{2}$$

$$\therefore (x - \frac{1}{2}) = b \Rightarrow x - \frac{1}{2} = b \Rightarrow x = b + \frac{1}{2}$$

$$x^2 + \frac{1}{x} = a - a \Rightarrow x^2 + \frac{1}{x} = a - a$$

$$x^2 = \frac{1}{x} \Rightarrow b + b \Rightarrow x^2 = \frac{1}{x} + 3(a-b)$$

2. The expression  $3x^3 + Ax^2 + Bx + 2$  is divisible by  $(x-1)$  and by  $(x-2)$ .  
 (i) Method I - By remainder theorem, when  $x=1$ , the remainder is 0.  
 $\therefore 0 + A + B + 2 = 0 \Rightarrow A + B = -2$  ... (1)  
 when  $x=2$ , the remainder is 0.  
 $\therefore 24 + 4A + 2B + 2 = 0 \Rightarrow 4A + 2B = -26 \Rightarrow 2A + B = -13$  ... (2)  
 solving (1) & (2):  $A + B = -2$  ... (1)  
 $2A + B = -13$  ... (2)  
 $\therefore A = -8, B = 6$  Ans. 1

(ii) Method II - By actual division  

$$\begin{array}{r} x-1 \overline{) 3x^3 + Ax^2 + Bx + 2} \\ \underline{3x^3 - 3x^2} \phantom{+ 2} \\ (A+3)x^2 + Bx + 2 \\ \underline{(A+3)x^2 - (A+3)x} \phantom{+ 2} \\ (A+B+3)x + 2 \\ \underline{(A+B+3)x - (A+B+3)} \\ 2 \text{nd Remainder} = A+B+5 = 0 \end{array}$$

$$\begin{array}{r} x-2 \overline{) 3x^3 + Ax^2 + Bx + 2} \\ \underline{3x^3 - 6x^2} \phantom{+ 2} \\ (A+6)x^2 + Bx + 2 \\ \underline{(A+6)x^2 - 2(A+6)x} \phantom{+ 2} \\ (A+B+6)x + 2 \\ \underline{(A+B+6)x - 2(A+B+6)} \\ 2 \text{nd Remainder} = A+B+2 = 0 \end{array}$$

$$\therefore \begin{cases} A+B+5 = 0 \\ A+B+2 = 0 \end{cases} \Rightarrow \begin{cases} A = -8 \\ B = 6 \end{cases} \text{ Ans. 1}$$

The 3rd factor is  $(x+A+3) = (x-8+3) = (3x+1)$  Ans. 2

$$y + 4 = 0 \quad \text{or} \quad y - y + 4 = 0 \quad \text{or} \quad y = -4$$

$$y - \frac{1}{8} + 1 = 0 \quad \text{or} \quad y - \frac{1}{8} + \frac{8}{8} = 0 \quad \text{or} \quad y - \frac{1}{8} + \frac{8}{8} = 0 \quad \text{or} \quad y = -\frac{7}{8}$$

$$\frac{2}{3} + \frac{3}{x} = 14 \quad \text{or} \quad \frac{2}{3} + \frac{3}{x} - 14 = 0 \quad \text{or} \quad \frac{2}{3} + \frac{3}{x} - \frac{42}{3} = 0 \quad \text{or} \quad \frac{3}{x} - \frac{40}{3} = 0$$

Combine (3) + (4):  $\frac{2}{3} + \frac{3}{x} = 14$  or (3)  $\frac{4}{x} = 8 \quad \therefore \frac{1}{x} = 2 \quad \therefore x = \frac{1}{2}$

From (4):  $\frac{1}{x} - \frac{2}{8} = -6$  or (4)  $\frac{1}{x} = 4 \quad \therefore x = \frac{1}{4}$

From (3):  $\frac{1}{y} - \frac{1}{8} + 1 = 0$  or  $\frac{1}{y} = \frac{1}{8} - 1 \quad \therefore \frac{1}{y} = -\frac{7}{8} \quad \therefore y = -\frac{8}{7}$

$$\therefore x = \frac{1}{2}$$

$$y = \frac{1}{3}$$

$$z = \frac{1}{4}$$

(20 marks)

4.  $\sqrt{x^4 - 2x + \frac{1}{9}} + \frac{23}{3}x^2 - 6x^3 = \sqrt{x^4 - 6x^3 + \frac{23}{3}x^2 - 2x + \frac{1}{9}}$

$$\sqrt{x^4 - 6x^3 + \frac{23}{3}x^2 - 2x + \frac{1}{9}} \quad | \quad x^2 - 3x + \frac{1}{3} \quad \text{Ans.}$$

$$\begin{array}{r} x^4 - 6x^3 + \frac{23}{3}x^2 - 2x + \frac{1}{9} \\ - (x^4 - 3x^3 + x^2 - 2x + \frac{1}{9}) \\ \hline -3x^3 + \frac{22}{3}x^2 - 2x + \frac{1}{9} \\ - (-3x^3 + 9x^2 - 2x + \frac{1}{9}) \\ \hline \frac{13}{3}x^2 - 2x + \frac{1}{9} \\ - (\frac{13}{3}x^2 - 13x + \frac{13}{9}) \\ \hline 11x - \frac{2}{9} \end{array}$$

(15 marks)

5. Let the time taken to overtake by friend be  $x$  hrs.

$\therefore$  I walk  $x$  hrs., and travel  $7x$  miles before I overtake, friend walks for  $(x+3)$  hrs., and he travels  $4(x+3)$  miles & he is overtaken.

$\therefore 7x = 4(x+3)$  or  $7x = 4x + 12 \quad \therefore 3x = 12 \quad \therefore x = \frac{12}{3} = 4$  hrs. or  $\frac{12}{3}$  hrs. Ans.

(15 marks)

6. Let  $x =$  unit's digit & the number is:  $x + 10y$

$y =$  ten's digit  $\therefore x + 10y = 6(x+y)$  or  $4y = 5x$  or  $y = \frac{5}{4}x$

$\therefore (x+y) = x + \frac{5}{4}x = \frac{9}{4}x$  is the number formed by interchanging the digits

is:  $10x + y$  which is given to be  $10x + \frac{5}{4}x = \frac{45}{4}x = 5(\frac{9}{4}x) = 5(x+y)$

(15 marks)

15. 1. ✓ If  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$  find  $x^2 + \frac{1}{x^2}$  and  $x^4 + \frac{1}{x^4}$  in terms of  $a$  and  $b$ . Hence, if  $x + \frac{1}{x} = 5$  find  $x^2 + \frac{1}{x^2}$  and  $x^4 + \frac{1}{x^4}$ .
20. 2. ✓ If the expression  $x^3 + Ax^2 + Bx + C$  is divisible by  $(x-2)$ , find the values of  $A$  and  $B$  and  $C$ .

$A = -8$   
 $B = 3$  } Ans.

3. ✓ Solve the two simultaneous equations:
20.  $\frac{x}{2} - \frac{y}{3} + 4 = 0$  ... (1)  
 $\frac{x}{3} - \frac{y}{2} + 1 = 0$  ... (2)  
 $\frac{x}{3} + \frac{y}{2} = 14$  ... (3)
- Ans.  $\left\{ \begin{array}{l} x = \frac{1}{2} \\ y = \frac{1}{3} \\ z = \frac{1}{4} \end{array} \right\}$

14. X Find the square root of the following expression:
15.  $x^4 - 2x + \frac{1}{9} + \frac{25}{3}x^2 - 6x^3$  Ans.  $x^2 - 3x + \frac{1}{3}$

5. X. walking 2 miles an hour, I start at  $2\frac{1}{2}$  hours after a friend whose pace is 4 miles an hour. How long shall I be in overtaking him?
15. ✓

6. X. Show that if a number of two digits is six times the sum of its digits the number formed by interchanging the digits is four times the sum.
15. ✓

SHAMASH SECONDARY SCHOOL  
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Class : 4th Year Secondary, Scientific

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Answer all questions :

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  2. If the expression  $3x^3 + Ax^2 + Bx + 2$  is divisible by  $(x - 1)$  and by  $(x - 2)$ , find the values of A and B and find the third factor. (20 marks).
  3. Solve simultaneously the three equations :  
(a)  $\frac{1}{x} - \frac{2}{y} + 4 = 0 \dots\dots(1)$ , (b)  $\frac{1}{y} - \frac{1}{z} + 1 = 0 \dots\dots(2)$ , (c)  $\frac{2}{z} + \frac{3}{x} = 14 \dots\dots(3)$ . (20 marks).
  4. Find the square root of the following expression :  
 $x^4 - 2x + \frac{1}{9} + \frac{29}{3}x^2 - 6x^3$ . (15 marks).
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Time : 8:30-10:00 a.m.

Answer all questions :

1. If  $(x + \frac{1}{x}) = a$  and  $(x - \frac{1}{x}) = b$ , find  $(x^3 + \frac{1}{x^3})$  in terms of 'a' and find  $(x^3 - \frac{1}{x^3})$  in terms of 'b'. Hence or otherwise, find the value of  $x^3$  in terms of 'a' and 'b'. (15 marks).
2. If the expression  $3x^3 + Ax^2 + Bx + 2$  is divisible by  $(x - 1)$  and by  $(x - 2)$ , find the values of A and B and find the third factor. (20 marks).
3. Solve simultaneously the three equations :  
(a)  $\frac{1}{x} + \frac{2}{y} + 4 = 0 \dots (1)$ , (b)  $\frac{1}{y} - \frac{1}{z} + 1 = 0 \dots (2)$ , (c)  $\frac{2}{z} + \frac{3}{x} = 14 \dots (3)$ . (20 marks).
4. Find the square root of the following expression :  
 $x^4 - 2x + \frac{1}{9} + \frac{29}{3}x^2 - 6x^3$ . (15 marks).
5. Walking 7 miles an hour, I start 2½ hours after a friend whose pace is 4 miles an hour. How long shall I be in overtaking him? (15 marks).
6. Show that if a number of two digits is six times the sum of its digits, the number formed by interchanging the digits is five times their sum. (15 marks).

Subject : Algebra  
Class : 4th Year Secondary, Scientific

Date : 13/12/1971  
Time : 8:30-10:00 a.m.

Answer all questions :

1. If  $(x + \frac{1}{x}) = a$  and  $(x - \frac{1}{x}) = b$ , find  $(x^3 + \frac{1}{x^3})$  in terms of 'a' and find  $(x^3 - \frac{1}{x^3})$  in terms of 'b'. Hence or otherwise, find the value of  $x^3$  in terms of 'a' and 'b'. (15 marks).
2. If the expression  $3x^3 + Ax^2 + Bx + 2$  is divisible by  $(x - 1)$  and by  $(x - 2)$ , find the values of A and B and find the third factor. (20 marks).
3. Solve simultaneously the three equations :  
(a)  $\frac{1}{x} + \frac{2}{y} + 4 = 0 \dots (1)$ , (b)  $\frac{1}{y} - \frac{1}{z} + 1 = 0 \dots (2)$ , (c)  $\frac{2}{z} + \frac{3}{x} = 14 \dots (3)$ . (20 marks).
4. Find the square root of the following expression :  
 $x^4 - 2x + \frac{1}{9} + \frac{29}{3}x^2 - 6x^3$ . (15 marks).
5. Walking 7 miles an hour, I start 2½ hours after a friend whose pace is 4 miles an hour. How long shall I be in overtaking him? (15 marks).
6. Show that if a number of two digits is six times the sum of its digits, the number formed by interchanging the digits is five times their sum. (15 marks).

SHAMASH SECONDARY SCHOOL

1st. Quarter Examination, November, 1971

Subject: Algebra  
Class : 4th Year Scientific

Date: 17/11/1971  
Time: 8:30 - 10:00 a.m.

1. Divide  $(\frac{9}{16}x^4 - \frac{3}{4}x^3 - \frac{7}{4}x^2 + \frac{4}{3}x + \frac{16}{9})$  by  $(\frac{3}{2}x^2 - \frac{8}{3} - x)$   
(20 marks)

2. (a) Find the quotient in each of the following divisions (without actually dividing) and state which of these divisions is not exact:

1.  $\frac{x^6 + y^6}{x + y}$       2.  $\frac{x^6 - y^6}{x + y}$       3.  $\frac{x^5 - y^5}{x + y}$       4.  $\frac{x^7 + y^7}{x + y}$   
5.  $\frac{x^7 + y^7}{x - y}$       (10 marks)

- (b) Reduce to simplest form:

(i)  $-10 \{ a - 6 [ a - (b-c) ] \} + 60 \{ b - (c + a) \}$   
(7 marks)

(ii)  $\frac{3}{8} \left\{ \frac{4}{3} (a - b) - 8(b - c) \right\} - \left\{ \frac{b - c}{2} - \frac{c - a}{3} \right\} - \frac{1}{2} \left\{ c - a - \frac{2}{3} (a - b) \right\}$   
(8 marks)

3. (i) Solve the equation:  $\frac{0.25(x - 3) + 0.3(x - 4)}{0.125} = 5x - 19$   
(10 marks)

- (ii) How many days will (c) cows take to eat (a) bushels of corn if (b) cows can eat (d) bushels of corn in (y) days.  
(10 marks)

4. Answer this question in a separate sheet and hand the sheet over with your examination book.

(55 marks)

...  
 ...  
 ...

(1)  $\frac{1}{x^2} = x^{-2}$   
 $\frac{d}{dx} x^{-2} = -2x^{-3} = -\frac{2}{x^3}$   
 (2)  $\frac{1}{x^3} = x^{-3}$   
 $\frac{d}{dx} x^{-3} = -3x^{-4} = -\frac{3}{x^4}$   
 (3)  $\frac{1}{x^4} = x^{-4}$   
 $\frac{d}{dx} x^{-4} = -4x^{-5} = -\frac{4}{x^5}$

(4)  $\frac{1}{x^5} = x^{-5}$   
 $\frac{d}{dx} x^{-5} = -5x^{-6} = -\frac{5}{x^6}$

(5)  $\frac{1}{x^6} = x^{-6}$   
 $\frac{d}{dx} x^{-6} = -6x^{-7} = -\frac{6}{x^7}$

(6)  $\frac{1}{x^7} = x^{-7}$   
 $\frac{d}{dx} x^{-7} = -7x^{-8} = -\frac{7}{x^8}$

(7)  $\frac{1}{x^8} = x^{-8}$   
 $\frac{d}{dx} x^{-8} = -8x^{-9} = -\frac{8}{x^9}$

(8)  $\frac{1}{x^9} = x^{-9}$   
 $\frac{d}{dx} x^{-9} = -9x^{-10} = -\frac{9}{x^{10}}$

(9)  $\frac{1}{x^{10}} = x^{-10}$   
 $\frac{d}{dx} x^{-10} = -10x^{-11} = -\frac{10}{x^{11}}$

(10)  $\frac{1}{x^{11}} = x^{-11}$   
 $\frac{d}{dx} x^{-11} = -11x^{-12} = -\frac{11}{x^{12}}$

(11)  $\frac{1}{x^{12}} = x^{-12}$   
 $\frac{d}{dx} x^{-12} = -12x^{-13} = -\frac{12}{x^{13}}$

(12)  $\frac{1}{x^{13}} = x^{-13}$   
 $\frac{d}{dx} x^{-13} = -13x^{-14} = -\frac{13}{x^{14}}$

(13)  $\frac{1}{x^{14}} = x^{-14}$   
 $\frac{d}{dx} x^{-14} = -14x^{-15} = -\frac{14}{x^{15}}$

(14)  $\frac{1}{x^{15}} = x^{-15}$   
 $\frac{d}{dx} x^{-15} = -15x^{-16} = -\frac{15}{x^{16}}$

(15)  $\frac{1}{x^{16}} = x^{-16}$   
 $\frac{d}{dx} x^{-16} = -16x^{-17} = -\frac{16}{x^{17}}$

(16)  $\frac{1}{x^{17}} = x^{-17}$   
 $\frac{d}{dx} x^{-17} = -17x^{-18} = -\frac{17}{x^{18}}$

(17)  $\frac{1}{x^{18}} = x^{-18}$   
 $\frac{d}{dx} x^{-18} = -18x^{-19} = -\frac{18}{x^{19}}$

(18)  $\frac{1}{x^{19}} = x^{-19}$   
 $\frac{d}{dx} x^{-19} = -19x^{-20} = -\frac{19}{x^{20}}$

$$= \frac{5(x-2) + 3(x-2)}{6} = \frac{8(x-2)}{6} = \frac{4(x-2)}{3}$$

$$= \frac{4x-8}{3} = \frac{4x}{3} - \frac{8}{3}$$

(ii)

Case	Labels	Exp
b	d	$\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$
c	a	$\frac{1}{3} \times \frac{2}{5} = \frac{2}{15}$
me	b.	



الرقم :  
الاسم :

Monthly Examination, August 1965

Subject: General Mathematics  
Class: 4th Year Secondary

Date: 19/8/1965  
Time: 7:30-8:15 a.m.

I. Give the English Equivalent of the following:

- |             |                 |
|-------------|-----------------|
| ١- ارقام    | ٦- المقسوم عليه |
| ٢- مراتب    | ٧- ناتج القسمة  |
| ٣- الطرح    | ٨- المقسوم      |
| ٤- الحوامل  | ٩- باقى القسمة  |
| ٥- أس القوة | ١٠- مضاعف       |

- ١١- اعداد زوجية متتالية
- ١٢- اعداد فردية متتالية
- ١٣- اعداد اولية
- ١٤- الجزء الصحيح من الحد
- ١٥- المقام المشترك الاصغر
- ١٦- كسر لفظي
- ١٧- مقلوب الحد
- ١٨- الكسور الحشرية المنتهية
- ١٩- الكسور الحشرية الدورية
- ٢٠- بسط الكسر
- ٢١- مقام الكسر
- ٢٢- الخطأ المئوى
- ٢٣- النسبة والتناسب
- ٢٤- الوسط المتناسب بين عددين
- ٢٥- ربح المساهم (ربح عامل الاسهم)
- ٢٦- البدئية
- ٢٧- الموضوعية
- ٢٨- زاوية حادة
- ٢٩- زاوية منفرجة
- ٣٠- زاوية منحكسة
- ٣١- قاطعة دائرة
- ٣٢- قطاع دائرة
- ٣٣- المعاليم
- ٣٤- المجاهيل
- ٣٥- زاويتان متتامتان

يتبع -

Subject: General Mathematics  
Class: 4th Year Secondary

Date: 19/8/1965  
Time: 7:30-8:15 a.m.

I. Give the English Equivalent of the following:

- ١- ارقام
- ٢- مراتب
- ٣- الطرح
- ٤- الحوامل
- ٥- أس القوة
- ٦- المقسوم عليه
- ٧- ناتج القسمة
- ٨- المقسوم
- ٩- باقي القسمة
- ١٠- مضاعف

your examination book  
division  
subtraction  
dividend  
remainder  
multiple

- ١١- اعداد زوجية متتالية
- ١٢- اعداد فردية متتالية
- ١٣- اعداد اولية
- ١٤- الجزء الصحيح من العدد
- ١٥- المقام المشترك الاصغر
- ١٦- كسر لفظي
- ١٧- مقلوب العدد
- ١٨- الكسور العشرية المنتهية
- ١٩- الكسور العشرية الدورية
- ٢٠- بسط الكسر
- ٢١- مقام الكسر
- ٢٢- الخطأ المئوي
- ٢٣- النسبة والتناسب
- ٢٤- الوسط المتناسب بين عددين
- ٢٥- ربح المساهم (ربح عامل الاسهم)
- ٢٦- البدئية
- ٢٧- الموضوعة
- ٢٨- زاوية حادة
- ٢٩- زاوية منفرجة
- ٣٠- زاوية منحكسة
- ٣١- قطاع دائرة
- ٣٢- قطاع دائرة
- ٣٣- المعاليم
- ٣٤- المجاهيل
- ٣٥- زاويتان متتامتان

Prime & prime numbers  
The integer part of a number  
The least common denominator  
The reciprocal of a number  
Terminating decimal  
Repeating decimal  
The denominator of a fraction  
Percentage error  
Ratio & Proportion  
The mean proportion between two numbers  
The geometric mean  
Dividend

SHALASH SECONDARY SCHOOL

1st. Quarter Examination, November, 1971

Subject: Algebra  
Class : 4th Year Scientific

Date: 17/11/1971  
Time: 8:30 - 10:00 a.m.

1. Divide  $(\frac{9}{16}x^4 - \frac{3}{4}x^3 - \frac{7}{4}x^2 + \frac{4}{3}x + \frac{16}{9})$  by  $(\frac{3}{2}x^2 - \frac{8}{3} - x)$   
(20 marks)

2. (a) Find the quotient in each of the following divisions (without actually dividing) and state which of these divisions is not exact:

1.  $\frac{x^6 + y^6}{x + y}$       2.  $\frac{x^6 - y^6}{x + y}$       3.  $\frac{x^5 - y^5}{x + y}$       4.  $\frac{x^7 + y^7}{x + y}$   
5.  $\frac{x^7 + y^7}{x - y}$       (10 marks)

(b) Reduce to simplest form:

(i)  $-10 \{ a - 6 [ a - (b-c) ] \} + 60 \{ b - (c + a) \}$   
(7 marks)

(ii)  $\frac{3}{8} \left\{ \frac{4}{5} (a - b) - 8(b - c) \right\} - \left[ \frac{b - c}{2} - \frac{c - a}{3} \right] - \frac{1}{2} \left\{ c - a - \frac{2}{3} (a - b) \right\}$   
(8 marks)

3. (i) Solve the equation:  $\frac{0.25(x - 3) + 0.3(x - 4)}{0.125} = 5x - 19$   
(10 marks)

(ii) How many days will (c) cows take to eat (a) bushels of corn if (b) cows can eat (d) bushels of corn in (y) days.  
(10 marks)

4. Answer this question in a separate sheet and hand the sheet over with your examination book.

(55 marks)

Subject: Algebra  
Class : 4th Secondary, Scientific Section

Date: 16/9/1971  
Time: 8:30 - 11:00 a.m.

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Answer all questions:

1. (i) If  $3x^3 - 4x + 6 = Ax(x^2 + 1) + Bx + C$  for all values of  $x$  where  $A$ ,  $B$  and  $C$  are numerical constants, find the values of  $A$ ,  $B$  and  $C$ .  
(10 marks)
- (ii) If  $(x - 3)$  is a factor of  $x^3 + px^2 - 21x + 18$ , find the value of  $p$  and the other two factors.  
(10 marks)
2. (i) Two motor cars started together to race over a distance of "a" miles. One car had an average speed of  $x$  miles per hour and crossed the finishing line "b" minutes ahead of the other. Find an expression for the time in hours taken by the slower car.  
(10 marks)
- (ii) A and B are two towns 44 miles apart. A cyclist and a motorist travel from A to B. The motorist leaves A 1 hr. 36 min. later than the cyclist but they reach B at exactly the same time. If the average speed of the motorist is 18 miles per hour greater than that of the cyclist, find the average speed of each.  
(10 marks)
3. (i) Compute by logarithms the value of  $N$  if:  
$$N = \sqrt[7]{\frac{(0.0001045)^2 (\sin 45^\circ 20')^3}{(3002)^2 (\tan 61^\circ 32')^2}}$$
  
(10 marks)
- (ii) Find the values of  $x$  from the following equation:  
$$(\log x)^2 + 5 = 6 \log x$$
  
(10 marks)
4. (i) The first term of an arithmetic progression is 6 and the sum of the fourth, fifth and sixth terms is zero. Find the common difference and the sum of the first 12 terms.  
(10 marks)
- (ii) The sum of  $n$  terms of a geometric progression is:  $2(3^n - 1)$ . Find the 3rd term and the number of terms that must be taken for their sum to be 1456.  
(10 marks)
5. (i) Draw the graph of  $y = (x + 2)(3 - x)$  for values of  $x$  from -3 to +4, choosing 2 cms for one unit on the  $x$  - axis and 1 cm. for one unit on the  $y$  - axis.  
(10 marks)
- (ii) Use your graph to solve the equation  $(x + 2)(3 - x) = 5$ .
- (iii) By drawing a straight line graph on your figure, find the range of values of  $x$  for which  $(x + 2)(3 - x)$  is greater than  $x$ .  
(10 marks)

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Subject: Algebra  
Class : 4th Secondary, Scientific Section

Date: 16/9/1971  
Time: 8:30 - 11:00 a.m.

Answer all questions:

1. (i) If  $3x^3 - 4x + 6 = Ax(x^2 + 1) + Bx + C$  for all values of  $x$  where  $A$ ,  $B$  and  $C$  are numerical constants, find the values of  $A$ ,  $B$  and  $C$ .  
(10 marks)
- (ii) If  $(x - 3)$  is a factor of  $x^3 + px^2 - 21x + 18$ , find the value of  $p$  and the other two factors.  
(10 marks)
2. (i) Two motor cars started together to race over a distance of "a" miles. One car had an average speed of  $x$  miles per hour and crossed the finishing line "b" minutes ahead of the other. Find an expression for the time in hours taken by the slower car.  
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- (ii) A and B are two towns 44 miles apart. A cyclist and a motorist travel from A to B. The motorist leaves A 1 hr. 36 min. later than the cyclist but they reach B at exactly the same time. If the average speed of the motorist is 18 miles per hour greater than that of the cyclist, find the average speed of each.  
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3. (i) Compute by logarithms the value of  $N$  if:  
$$N = \sqrt[7]{\frac{(0.0001045)^2 (\sin 45^\circ 20')^3}{(3002)^2 (\tan 61^\circ 32')^2}}$$
  
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- (ii) Find the values of  $x$  from the following equation:  
$$(\log x)^2 + 5 = 6 \log x$$
  
(10 marks)
4. (i) The first term of an arithmetic progression is 6 and the sum of the fourth, fifth and sixth terms is zero. Find the common difference and the sum of the first 12 terms.  
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- (ii) The sum of  $n$  terms of a geometric progression is:  $2(3^n - 1)$ . Find the 3rd term and the number of terms that must be taken for their sum to be 1456.  
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5. (i) Draw the graph of  $y = (x + 2)(3 - x)$  for values of  $x$  from -3 to +4, choosing 2 cms for one unit on the  $x$  - axis and 1 cm. for one unit on the  $y$  - axis.  
(10 marks)
- (ii) Use your graph to solve the equation  $(x + 2)(3 - x) = 5$ .  
(10 marks)
- (iii) By drawing a straight line graph on your figure, find the range of values of  $x$  for which  $(x + 2)(3 - x)$  is greater than  $x$ .  
(10 marks)

Subject: Algebra  
Class : 4th Secondary, Scientific Section

Answer all questions:

1. (i) If  $3x^3 - 4x + 6 = Ax(x^2 + 1) + Bx + C$  for all values of  $x$  where  $A$ ,  $B$  and  $C$  are numerical constants, find the values of  $A$ ,  $B$  and  $C$ .  
(10 marks)
- (ii) If  $(x - 3)$  is a factor of  $x^3 + px^2 - 21x + 18$ , find the value of  $p$  and the other two factors.  
(10 marks)
2. (i) Two motor cars started together to race over a distance of "a" miles. One car had an average speed of  $x$  miles per hour and crossed the finishing line "b" minutes ahead of the other. Find an expression for the time in hours taken by the slower car.  
(10 marks)
- (ii) A and B are two towns 44 miles apart. A cyclist and a motorist travel from A to B. The motorist leaves A 1 hr. 36 min. later than the cyclist but they reach B at exactly the same time. If the average speed of the motorist is 18 miles per hour greater than that of the cyclist, find the average speed of each.  
(10 marks)
3. (i) Compute by logarithms the value of  $N$  if:  
$$N = \sqrt[7]{\frac{(0.0001045)^2 (\sin 45^\circ 20')^3}{(3002)^2 (\tan 61^\circ 32')^2}}$$
  
(10 marks)
- (ii) Find the values of  $x$  from the following equation:  
$$(\log x)^2 + 5 = 6 \log x$$
  
(10 marks)
4. (i) The first term of an arithmetic progression is 6 and the sum of the fourth, fifth and sixth terms is zero. Find the common difference and the sum of the first 12 terms.  
(10 marks)
- (ii) The sum of  $n$  terms of a geometric progression is:  $2(3^n - 1)$ . Find the 3rd term and the number of terms that must be taken for their sum to be 1456.  
(10 marks)
5. (i) Draw the graph of  $y = (x + 2)(3 - x)$  for values of  $x$  from -3 to +4, choosing 2 cms for one unit on the  $x$  - axis and 1 cm. for one unit on the  $y$  - axis.  
(10 marks)
- (ii) Use your graph to solve the equation  $(x + 2)(3 - x) = 5$ .  
(10 marks)
- (iii) By drawing a straight line graph on your figure, find the range of values of  $x$  for which  $(x + 2)(3 - x)$  is greater than  $x$ .  
(10 marks)

Subject : Algebra  
Class : 4th Year Secondary

Date : 27/5/1971  
Time : 8:00 - 11:00 a.m.

Solve five questions only including numbers 5, 6 and 7.

1. (i) Resolve into factors:  $(3a - 2b)^2 - 2(3a - 2b)$

(6 marks)

(ii) If  $B = \frac{n}{2}(p_1 + p_2 + 3p_3)$ , find an expression for  $p_2$  in terms of  $B, n, p_1$  and  $p_3$ .

(6 marks)

(iii) If the sum of the first  $n$  terms of a series is given by the expression  $3n^2 - 8n$ , find the numerical value of the fifth term.

(8 marks)

2. (i) If  $\frac{3^5 \times 9^4}{27^2} = 3^n$ , find the value of  $n$ . (5 marks)

(ii) If  $\frac{1}{x} + \frac{1}{y} = 4.6$

$\frac{1}{x} - \frac{1}{y} = 1.4$

Calculate the values of  $x$  and  $y$ . (5 marks)

(iii) If  $s = \frac{m}{p}$ ,  $c = \frac{n}{p}$  and  $m^2 + n^2 = p^2$ , find a formula independent of  $m, n$  and  $p$  relating  $s$  and  $c$ . If further  $t = \frac{m}{n}$ , prove that

$c^2 = \frac{1}{1+t^2}$

(5 marks)

(iv) Solve the equation  $3x^2 - 2x - 4 = 0$ , giving your answers correct to two decimal places.

(5 marks)

3. A football team plays 42 games in a season and is awarded two points for each win, one point for each draw and no points if it loses. During the season the team was awarded 58 points and won three times as many games as it lost. Calculate:

- (a) the number of games lost,
- (b) the number of drawn games.

(20 marks)

4. Write down six consecutive odd numbers, the smallest of which is  $(2n - 5)$  and find the average of the six numbers. Show that the sum of their squares exceeds six times the square of their average by 70. Use this statement to calculate

$25^2 + 27^2 + 29^2 + 31^2 + 33^2 + 35^2$

(20 marks)

5. (i) Evaluate:

$\frac{x^{\frac{3}{2}} + xy}{xy - y^{\frac{3}{2}}} - \frac{\sqrt{x}}{\sqrt{x} - y}$

(6 marks)

Subject : Algebra

- P. 2 -

Date : 27/5/1971

(ii) Simplify: 
$$\frac{3(2^{\frac{n+1}{2}}) - 4(2^{\frac{n-1}{2}})}{2^{\frac{n+1}{2}} - 2^{\frac{n-1}{2}}}$$
 (6 marks)

(iii) Use logarithmic tables to calculate

$$\sqrt[7]{\frac{(0.0001004)^2 (\sin 31^\circ 40')^2}{(1.205)^3 (\cos 17^\circ 14')^3}}$$
 (8 marks)

6. (i) The sum of the fifth and seventh terms of an arithmetic progression is 94. The sum of the first 20 terms is 1660. Calculate the first term of the progression and the common difference.

(10 marks)

(ii) A man sets out from his wrecked aircraft to walk 72 miles to obtain assistance. Each day he finds that he can always walk a certain number of miles less than the previous day's distance, the difference remaining the same each day. If he walked 14 miles the second day and 8 miles on the fifth day, calculate

- (a) how far he walked on the first day.
- (b) how far he was from his destination at the end of the seventh day?

(10 marks)

7. A crane stands on a platform on top of one of the buildings of a building site. The platform is 50 ft. above ground level and the crane lifts loads to points above and below the level of the platform. After the crane has lifted a load for  $t$  seconds, the height  $h$  ft. of the load above the platform is given by

$$h = 8t^2 - 2t^3$$

Taking 1 inch to represent 10 ft. and 1 second, draw a graph showing the relationship between  $h$  and  $t$  for values of  $t$  from 0 to 5.

From your graph, find

- (a) the maximum height of the load above the platform,  $\rightarrow h_{max} = 18 \frac{26}{27}$
- (b) the time taken for the load to reach ground level,  $\rightarrow$  when  $h=50$ ,  $t = 5$  seconds
- (c) the distance the load is above ground level after 2.5 seconds.

(20 marks) when  $t = 2.5$  sec,  $h = 18 \frac{3}{4}$

$50 + 18 \frac{3}{4} = 68 \frac{3}{4}$  ft above ground level

Subject : Algebra  
Date : 27/5/1971  
Time : 8:00 - 11:00 a.m.

Solve five questions only including numbers 6, 7 and 8.  
I. (i) Resolve into factors:  $(3a - 2b)^2 - (2a - 3b)^2$  (2 marks)

(ii) If  $B = \frac{1}{2}(P^2 + Q^2)$ , find an expression for  $P$  in terms of  $B$  and  $Q$ . (2 marks)

(iii) If the sum of the first  $n$  terms of a series is given by the expression  $2n^2 + 3n$ , find the numerical value of the 11th term. (2 marks)

(iv) If  $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$ , find the value of  $\frac{xy}{x+y}$ . (2 marks)

(v) Calculate the values of  $x$  and  $y$ .  
 $\frac{1}{x} + \frac{1}{y} = \frac{1}{4}$   
 $\frac{1}{x} - \frac{1}{y} = \frac{1}{6}$  (2 marks)

(vi) If  $a = \frac{b}{c}$  and  $b = \frac{c}{d}$ , find a formula independent of  $a, b$  and  $c$  relating  $d$  and  $c$ . If further  $d = \frac{c}{e}$ , prove that  $\frac{1}{e} = \frac{1}{a} + \frac{1}{c}$ . (2 marks)

(vii) Solve the equation  $2x^2 - 3x - 4 = 0$ , giving your answers correct to two decimal places. (2 marks)

(viii) A football team plays 22 games in a season and its record is as follows: 10 wins, 10 losses and 2 draws. Each win is worth 3 points, each draw 1 point and each loss 0 points. Calculate the number of goals scored. (2 marks)

(ix) The number of boys in a school is 120. The number of girls is 80. Calculate the average of the six numbers. Show that the sum of their squares is 100. Use this information to calculate  $1^2 + 2^2 + 3^2 + \dots + 10^2$ . (20 marks)

(x) (i) Evaluate  $\frac{x^2 + 2x + 1}{x^2 - 1}$ . (2 marks)

(ii) Evaluate  $\frac{x^2 + 2x + 1}{x^2 - 1}$ . (2 marks)

1. (i)  $(3a-2b)^2 - 2(3a-2b) = (3a-2b)[3a-2b-2]$  Ans. 1.

(ii)  $B = \frac{n}{2}(p_1 + p_2 + 3p_3) \quad \therefore \frac{2B}{n} = p_1 + p_2 + 3p_3$

$\therefore p_2 = \frac{2B}{n} - p_1 - 3p_3 = \frac{2B - n(p_1 + 3p_3)}{n}$  Ans. 2

(iii)  $\text{Sum}_n = 3n^2 - 8n$  when  $n=5$ ,  $\text{Sum}_5 = 3 \times 5^2 - 8 \times 5 = 35 = S_5$   
when  $n=4$ ,  $\text{Sum}_4 = 3 \times 4^2 - 8 \times 4 = 16 = S_4$   
 $\therefore$  numerical value of 5<sup>th</sup> term =  $S_5 - S_4 = 35 - 16 = 19$  Ans. 3

2. (i)  $\frac{3^5 \times 2^4}{27^2} = 3^n \quad \therefore \frac{3^5 \times (3^2)^4}{(3^3)^2} = 3^n \quad \therefore \frac{3^5 \times 3^8}{3^6} = 3^n$

$\therefore 3^{5+8-6} = 3^n \quad \therefore 3^7 = 3^n \quad \therefore n = 7$  Ans. 1.

(ii)  $\frac{1}{x} + \frac{1}{y} = 4.6 \dots \textcircled{1}$  } adding:  $\frac{2}{x} = 6 \quad \therefore x = \frac{1}{3}$   
 $\frac{1}{x} - \frac{1}{y} = 1.4 \dots \textcircled{2}$  }  $\therefore \frac{1}{y} = 4.6 - \frac{1}{x}$   
 $x+y = 4.6 - 3 = 1.6 = \frac{8}{5} \quad \therefore y = \frac{5}{8}$  Ans.

(iii)  $S = \frac{m}{p} \dots \textcircled{1}$ ,  $c = \frac{n}{p} \dots \textcircled{2}$ ,  $m^2 + n^2 = p^2$ , find a formula relating  $s$  &  $c$ .

$S = \frac{m}{p}$ , but  $p = \frac{n}{c}$  from the second eq.  $\therefore S = \frac{m}{\frac{n}{c}} \Rightarrow S = \frac{m}{n} c \dots \textcircled{3}$

From eq. 3:  $\frac{m^2}{n^2} + 1 = \frac{p^2}{n^2} \quad \therefore \frac{m^2}{n^2} = \frac{p^2}{n^2} - 1$  or  $\frac{m^2}{n^2} = \frac{p^2 - n^2}{n^2}$  or

but from (2):  $p = \frac{n}{c} \quad \therefore p^2 = \frac{n^2}{c^2} \quad \therefore \frac{m^2}{n^2} = \frac{\frac{n^2}{c^2} - n^2}{n^2}$  or

$\frac{m^2}{n^2} = \frac{n^2(\frac{1}{c^2} - 1)}{n^2}$  or  $\frac{m^2}{n^2} = \frac{1-c^2}{c^2} \quad \therefore \frac{m}{n} = \frac{\sqrt{1-c^2}}{c}$ , from (3):

$S = \frac{m}{n} c$  or  $S = \frac{\sqrt{1-c^2}}{c} \cdot c \quad \therefore S = \sqrt{1-c^2}$  or  $S^2 = 1-c^2$  or

$S^2 + c^2 = 1$  Ans. also  $c^2 = 1 - S^2$  or  $c = \sqrt{1 - (\frac{m}{n})^2}$  from (3)

$\therefore c = \sqrt{1 - \frac{m^2}{n^2}} \quad \therefore c^2 + \frac{m^2}{n^2} = 1$  or  $c^2(1 + \frac{m^2}{n^2}) = 1 \quad \therefore c^2 = \frac{1}{1 + \frac{m^2}{n^2}}$  Ans.

(iv)  $3x^2 - 2x - 4 = 0 \quad \therefore x = \frac{2 \pm \sqrt{4 - 4 \times 3 \times (-4)}}{6} = \frac{2 \pm \sqrt{52}}{6} = \frac{2 \pm 2\sqrt{13}}{6}$

$\therefore x = \frac{1 \pm \sqrt{13}}{3} \quad \therefore x = \frac{1 + \sqrt{13}}{3} = 1 + 3.606 = 4.606 \quad \text{or} \quad \frac{1 - \sqrt{13}}{3} = -1.535 = -1.54$



weight in a 2 liter bottle  
 10/2/10 = 1.11 gm, mass of

1. (i)  $(a+b+c)(d+e) = (a+b)(d+e) + c(d+e)$

(ii)  $(a+b+c)(d+e) = (a+b)(d+e) + c(d+e)$

(iii)  $a^2 - 2ab + b^2 = (a-b)^2$

(iv)  $a^2 - b^2 = (a+b)(a-b)$

(v)  $a^2 + b^2 = (a+b)^2 - 2ab$

(vi)  $\frac{1}{a} + \frac{1}{b} = \frac{a+b}{ab}$

(vii)  $\frac{1}{a} - \frac{1}{b} = \frac{b-a}{ab}$

(viii)  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = \frac{ab+bc+ca}{abc}$

(ix)  $\frac{1}{a} + \frac{1}{b} = \frac{1}{\frac{ab}{a+b}}$

(x)  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = \frac{1}{\frac{abc}{ab+bc+ca}}$

(xi)  $\frac{1}{a} + \frac{1}{b} = \frac{1}{\frac{ab}{a+b}}$

(xii)  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = \frac{1}{\frac{abc}{ab+bc+ca}}$

(xiii)  $\frac{1}{a} + \frac{1}{b} = \frac{1}{\frac{ab}{a+b}}$

(xiv)  $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = \frac{1}{\frac{abc}{ab+bc+ca}}$

(xv)  $\frac{1}{a} + \frac{1}{b} = \frac{1}{\frac{ab}{a+b}}$

3. Suppose  $x = \text{no. of gains lost}$   $x + 3y = 42$  --- (1)

$y = \text{no. of draws}$   $2(2x) + y = 58$  --- (2)

or  $4x + y = 58$  --- (3)

or subtract (3) from (1):  $2x = 16 \Rightarrow x = 8$  no. of gains lost  
 from (3):  $y = 58 - 4x = 58 - 32 = 26 \Rightarrow y = 26$  no. of draws } Ans.

4. The six consecutive odd numbers are:  
 $(2n-5), (2n-3), (2n-1), (2n+1), (2n+3), (2n+5)$   $\therefore \text{Average} = 2n$

Sum of their squares =  $(2n-5)^2 + (2n-3)^2 + (2n-1)^2 + (2n+1)^2 + (2n+3)^2 + (2n+5)^2$   
 $= 6(2n)^2 + 5^2 + 3^2 + 1^2 + 1^2 + 3^2 + 5^2 = 24n^2 + 50 + 18 + 2 = 24n^2 + 70$

Their average =  $\frac{(2n-5) + (2n-3) + (2n-1) + (2n+1) + (2n+3) + (2n+5)}{6} = \frac{6(2n)}{6} = 2n = \text{Av.}$

Since  $S^2 = 24n^2 + 70$  or  $S^2 = 6(2n)^2 + 70 \therefore S^2 - 6(2n)^2 = 70$

or Sum of squares - six times Av. = 70 Q.E.D.

The smallest of 25, 27, 29, 31, 33, 35 is 25  $\therefore 25 = 2n-5$

$\therefore 2n = 30$  and  $n = 15$

$\therefore 25^2 + 27^2 + 29^2 + 31^2 + 33^2 + 35^2 = 24n^2 + 70 = 24 \times 15^2 + 70$   
 $= 24 \times 225 + 70 = 5400 + 70 = 5470$  Ans.

5(i)

5(i) Evaluate:  $\frac{x^2 + xy}{xy - y^3} - \frac{\sqrt{x}}{\sqrt{x} - y} = \frac{x(x^{\frac{1}{2}} + y)}{y(x - y^3)} - \frac{x^{\frac{1}{2}}}{x^{\frac{1}{2}} - y}$

$$= \frac{x(x^{\frac{1}{2}} + y)}{y(x^{\frac{1}{2}} + y)(x^{\frac{1}{2}} - y)} - \frac{x^{\frac{1}{2}}y}{y(x^{\frac{1}{2}} - y)} = \frac{x - x^{\frac{1}{2}}y}{y(x^{\frac{1}{2}} - y)} = \frac{x^{\frac{1}{2}}(x^{\frac{1}{2}} - y)}{y(x^{\frac{1}{2}} - y)} = \frac{\sqrt{x}}{y} \text{ Ans.}$$

(ii) Simplify:  $\frac{3(2^{n+1}) - 4(2^{n-1})}{2^{n+1} - 2^n} = \frac{3(2^{n+1}) - 2^2(2^{n-1})}{2^n(2-1)}$

$$= \frac{3(2^{n+1}) - (2^{n+1})}{2^n} = \frac{2(2^{n+1})}{2^n} = \frac{2^{n+2}}{2^n} = 2^2 = 4 \text{ Ans.}$$

(iii)  $\log 0.0001004 = \bar{4}.0017$   
 $\log 1205 = 3.0809$   
 $\log \sin 31^\circ 40' = \bar{1}.7201$   
 $\log \cos 17^\circ 14' = \bar{1}.9800$

$$\begin{array}{r} 3 \log 1205 = 9.2427 \\ 3 \log \cos 17^\circ 14' = 7.9400 \\ \hline \log \text{Den} = 9.1827 \end{array}$$

$$\begin{array}{r} 2 \log 0.0001004 = \bar{8}.0034 \\ 2 \log \sin 31^\circ 40' = \bar{1}.4402 \\ \hline \log \text{Num} = \bar{9}.4436 \\ \log \text{Den} = 9.1827 \\ \hline 7 \log x = \bar{18}.2609 \end{array}$$

$$\begin{array}{r} \log x = \bar{3}.46584... \\ x = 2.922 \times 10^{-3} \\ \text{or } x = 0.002922 \text{ Ans.} \end{array}$$

$$x = \sqrt[7]{\frac{(0.0001004)^2 (\sin 31^\circ 40')^2}{(1205)^3 (\cos 17^\circ 14')^3}}$$

6. (i)  $l_5 + l_7 = 94$ ,  $S_{10} = 1660$ ,  $a = ?$ ,  $d = ?$

$94 = (a + 4d) + (a + 6d)$  or  $2a + 10d = 94$  or  $a + 5d = 47$  ... (1)

$1660 = \frac{10}{2} \{2a + 9d\}$  or  $2a + 9d = 166$  ... (2)

from (1):  $2a + 10d = 94$  } subtract (1) from (2):  
" (2):  $2a + 9d = 166$  }  $9d = 72$  "  $d = 8$  } Ans.  
" " " " "  $a = 7$

(ii)  $l_2 = 14$  miles |  $a = ?$  |  $14 = a + d$  ... (1)  
 $l_5 = 8$  " |  $l_7 = ?$  |  $8 = a + 4d$  ... (2)  
 $S_{10} = 72$  " | " |  $3d = -6$  "  $d = -2$  } Ans.!  
" " " " "  $a = 16$

(a)  $\therefore$  he walked 16 miles the first day Ans.

(b)  $S_{10} = \frac{10}{2} \{2 \times 16 + 6(-2)\} = \frac{10}{2} \{32 - 12\} = \frac{10}{2} (20) = 70$

$\therefore 72 - 70 = 2$  miles before he reaches his destination Ans.

7.  $h = 8t^2 - 2t^3 = 2t^2(4 - t)$

t	0	1	2	3	4	5
h	0	6	16	18	0	-50

at  $t = 2\frac{2}{3}$  Ans.

- (a) The maximum height of the load above the platform =  $18\frac{26}{27} \approx 19$  ft Ans.
- (b) the time taken for the load to reach ground level is  $t = 5$  seconds, when  $h = -50$  ft Ans.
- (c) After 2.5 seconds (ie. when  $t = \frac{5}{2}$ ),  $h = 18\frac{3}{4}$  ft. Ans.  
 $\therefore$  the load is  $(50 + 18\frac{3}{4}) = 68\frac{3}{4}$  ft above ground level. Ans.

Handwritten notes at the top of the left page, including a date and some illegible text.

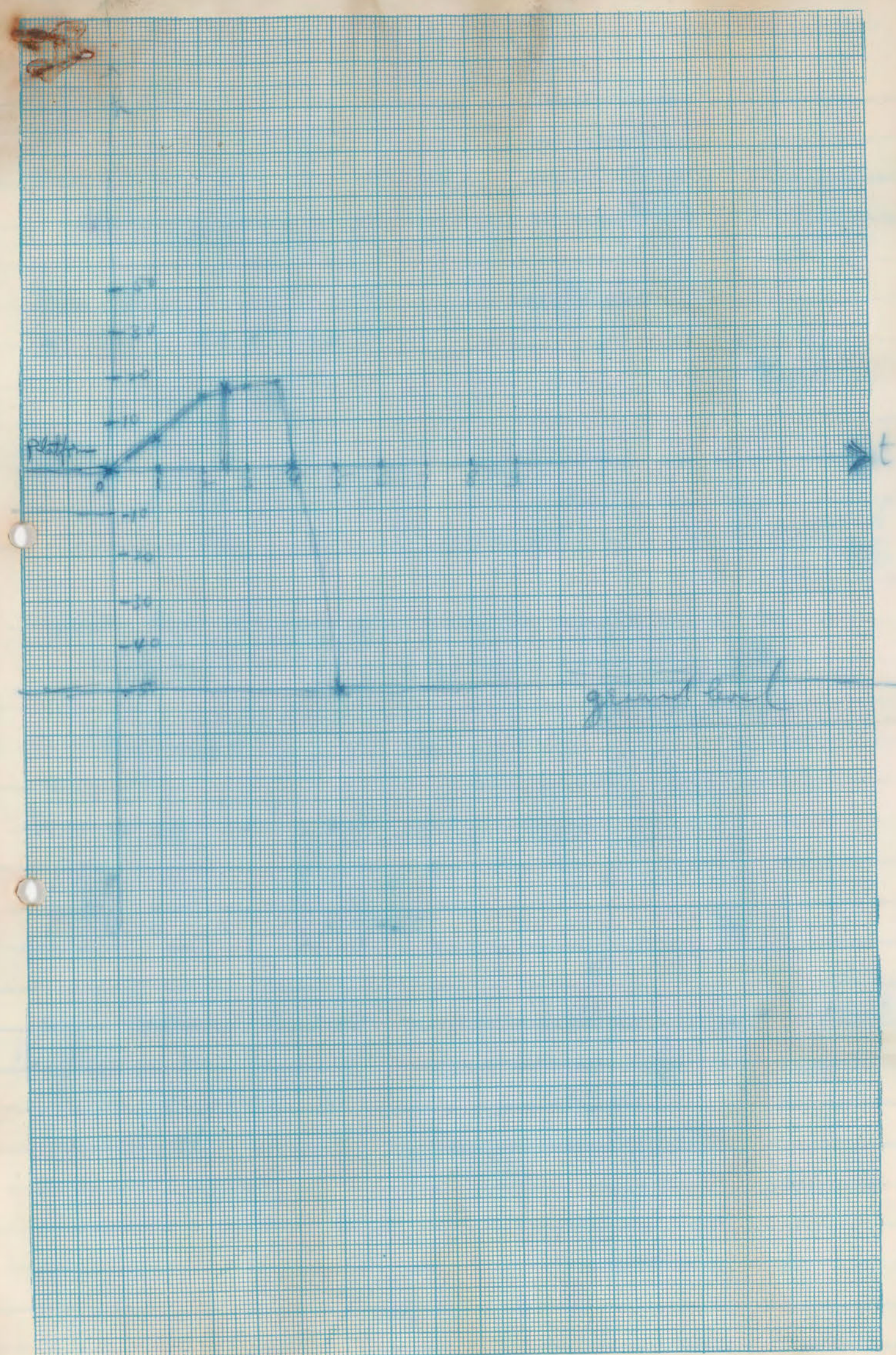
Handwritten notes in the middle of the left page, including a list of values and some calculations.

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$$f = \frac{1}{2\pi} \sqrt{\frac{g}{L}}$$

1	0.2	0.1	0.1	0.1	0.1
2	0.4	0.2	0.2	0.2	0.2
3	0.6	0.3	0.3	0.3	0.3
4	0.8	0.4	0.4	0.4	0.4
5	1.0	0.5	0.5	0.5	0.5

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Solution to Integral in 1. ch 1

Sept. 16th 1971

1. (i)  $3x^2 - 4x + 6 = A(x^2 + 1) + Bx + C$  for all values of  $x$ . Find  $A, B, C$ .

let  $x=0 \Rightarrow 6 = C \quad \text{--- (1)}$

let  $x=1 \Rightarrow 2 - 4 + 6 = A(2) + B + 6 \quad \text{or } 2A + B = -1 \quad \text{--- (2)}$

let  $x=2 \Rightarrow 12 - 8 + 6 = 2A(5) + B + 6 \quad \text{or } 5A + B = 8 \quad \text{--- (3)}$

solving (2) + (3):  $3A = 9 \Rightarrow A = 3$  and  $B = -7 \Rightarrow$   
 $A = 3$   
 $B = -7$   
 $C = 6$  } Ans.

(ii)  $(x-3)$  is a factor of  $x^3 + px^2 - 21x + 18$  find  $p$  & the other 2 factors.

By the remainder theorem, when  $x=3$ , then  $x^3 + px^2 - 21x + 18 = 0$  or

$27 + 9p - 63 + 18 = 0$  or  $9p - 18 = 0 \Rightarrow p = 2$  find

$\therefore x^3 + 2x^2 - 21x + 18 = (x-3)(x^2 + 5x - 6) = (x-3)(x+6)(x-1)$

$\therefore$  the other 2 factors are  $(x+6)$  and  $(x-1)$  Ans.

another method: By actual division:

$\begin{array}{r} x^3 + px^2 - 21x + 18 \\ x^3 - 3x^2 \\ \hline (p+3)x^2 - 21x + 18 \\ (p+3)x^2 - 3(p+3)x \\ \hline (3-15)x + 18 \\ (3-15)x - 3(3-15) \\ \hline 9p - 18 = \text{Remainder} = 0 \\ \therefore p = 2 \quad \text{Ans. 1} \end{array}$	$\begin{array}{r} x^3 + 5x^2 - 6x + 18 \\ x^3 + 5x^2 - 6x + 18 \\ \hline \hline \end{array}$ <p><math>\therefore</math> the product of the other factors are:  <math>x^2 + 5x - 6 = (x+6)(x-1)</math> <u>Ans. 2</u></p>
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2. (i) Time for faster car:  $T_f = \frac{a}{x}$  hrs.

Time for slower car:  $T_s = \frac{a}{x} + \frac{b}{60} = \frac{60a + bx}{60x}$  hrs. Ans.

(ii) Let the speed of the cyclist be  $x$  mi/hr.

$\therefore$  Average speed of motorist =  $(x+18)$  mi/hr.

$\therefore$  time taken by cyclist =  $\frac{44}{x}$  hrs.  $\therefore \frac{44}{x} = \frac{44}{x+18} + \frac{1}{60}$

also " " " Motorist =  $\frac{44}{x+18}$  or  $\frac{44}{x+18} - \frac{44}{x} + \frac{1}{60} = 0$

$\therefore 5x + 4(x+18) - 5x - 44 = 8x(x+18)$  or

$220x + 3960 - 220x = 8x^2 + 144x$  or  $8x^2 + 144x - 3960 = 0$  or

$x^2 + 18x - 495 = 0$  or  $(x+33)(x-15) = 0 \Rightarrow x = -33$  (invalid)

and  $x = 15$  mi/hr average speed of cyclist Ans.

$\therefore x+18 = 33$  mi/hr. " " " " Ans.

$$3. (i) N = \sqrt{\frac{(0.0001045)^2 (\sin 45^\circ 20')^2}{(3002)^2 (\tan 61^\circ 32')^2}}$$

$\log 0.0001045 = 4.0191$	$2 \log 0.0001045 = 8.0382$	$2 \log 3002 = 6.7548$
$\log \sin 45^\circ 20' = 7.8519$	$3 \log \sin 45^\circ 20' = 1.5557$	$2 \log \tan 61^\circ 32' = 9.5316$
$\log 3002 = 3.4774$	$\log \text{Num} = 9.5939$	$\log \text{Den} = 7.4864$
$\log \tan 61^\circ 32' = 0.2658$	$\log \text{Den} = 7.4864$	
	$7 \log N = 16.1075$	
	$\log N = 3.72964$	
		$= 3.7296$ Round to 4 dec. pl.

$$\therefore N = 5.365 \times 10^{-5} \approx 0.005365 \text{ Ans.}$$

$$(ii) (\log x)^2 + 5 = 6 \log x \quad \therefore (\log x)^2 - 6(\log x) + 5 = 0$$

$$\therefore (\log x - 1)(\log x - 5) = 0 \quad \therefore \log x = 1 \quad \therefore x = 10 \text{ Ans. 1}$$

$$\text{or } \log x = 5 \quad \therefore x = 10^5 = 100000 \text{ Ans. 2}$$

$$4 (i) a = 6, b_1 + b_2 + b_3 = 0, d = ?, S_n = ?$$

$$\therefore (a + 3d) + (a + 4d) + (a + 5d) = 0 \quad \text{or } 3a + 12d = 0 \quad \text{or } 18 + 12d = 0$$

$$\therefore d = -\frac{3}{2} \text{ Ans. 1}$$

$$S_{12} = \frac{12}{2} \left\{ 2 \times 6 + 11 \left(-\frac{3}{2}\right) \right\} = 6 \left\{ 12 - \frac{33}{2} \right\} = \frac{6(24 - 33)}{2} = 3(-9) = -27 \text{ Ans. 2}$$

$$(ii) S_n = 2(3^n - 1), \quad \frac{b}{3} = ?, \quad n = ? \text{ if } S_n = 1456$$

$$S_3 = 2(3^3 - 1) = 52 \quad \therefore \frac{b}{3} = S_3 - \frac{b}{3} = 52 - 16 = 36 \text{ Ans.}$$

$$S_2 = 2(3^2 - 1) = 16$$

$$\text{Now } 1456 = 2(3^n - 1) \quad \therefore 3^n - 1 = 728 \quad \therefore 3^n = 729 = 3^6$$

$$\therefore n = 6 \text{ Ans. 2}$$

$\sqrt{113}$

$2+3=5$  |  $3+4=7$  |  $4+5=9$  |  $5+6=11$  |  $6+7=13$  |  $7+8=15$  |  $8+9=17$  |  $9+10=19$  |  $10+11=21$  |  $11+12=23$  |  $12+13=25$  |  $13+14=27$  |  $14+15=29$  |  $15+16=31$  |  $16+17=33$  |  $17+18=35$  |  $18+19=37$  |  $19+20=39$  |  $20+21=41$  |  $21+22=43$  |  $22+23=45$  |  $23+24=47$  |  $24+25=49$  |  $25+26=51$  |  $26+27=53$  |  $27+28=55$  |  $28+29=57$  |  $29+30=59$  |  $30+31=61$  |  $31+32=63$  |  $32+33=65$  |  $33+34=67$  |  $34+35=69$  |  $35+36=71$  |  $36+37=73$  |  $37+38=75$  |  $38+39=77$  |  $39+40=79$  |  $40+41=81$  |  $41+42=83$  |  $42+43=85$  |  $43+44=87$  |  $44+45=89$  |  $45+46=91$  |  $46+47=93$  |  $47+48=95$  |  $48+49=97$  |  $49+50=99$

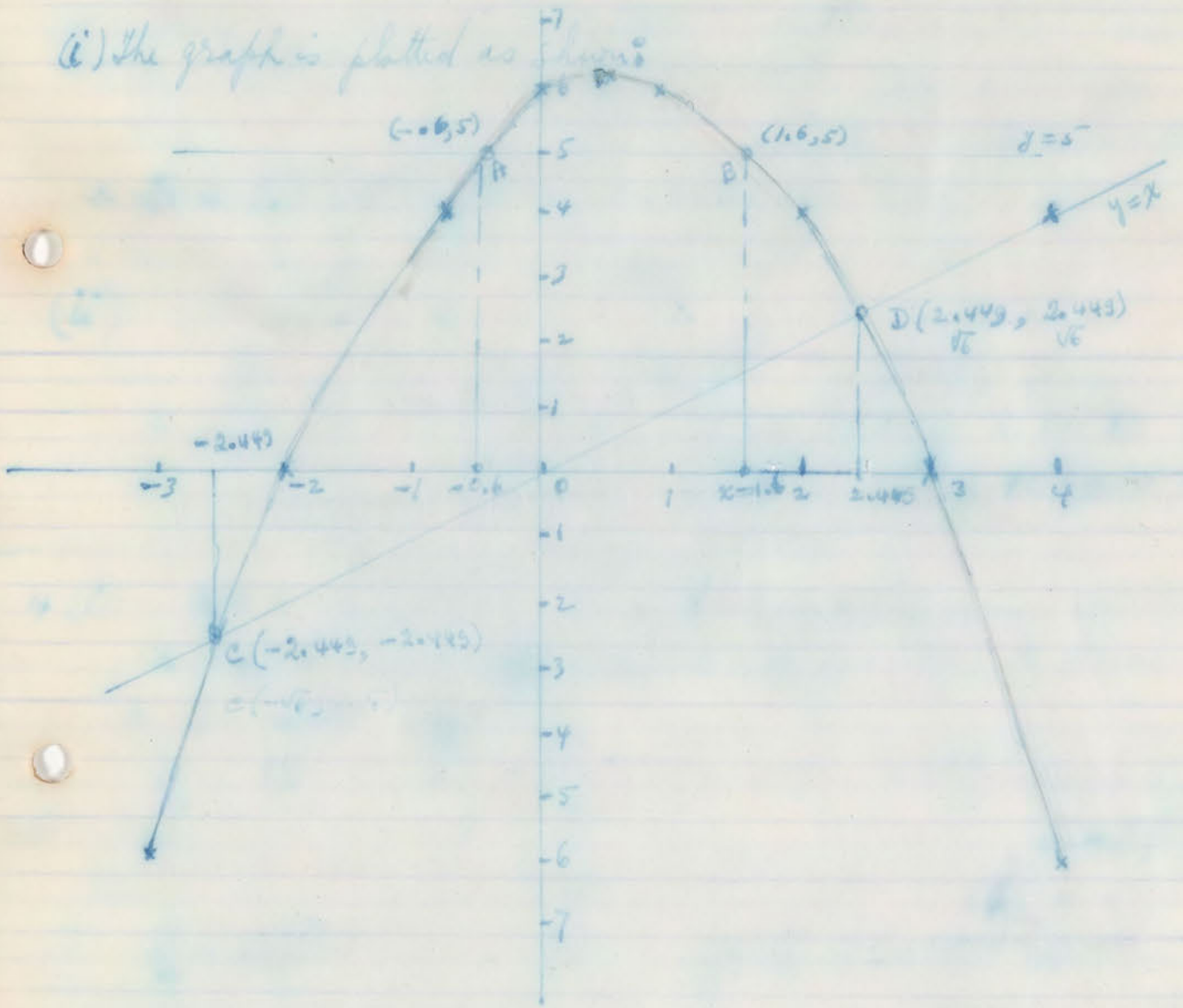
(ii)

(iii)

Subtract the graph of  $y = (x+2)(3-x)$  from  $x = -3$  to  $x = 4$

2 cm = 1 unit on x-axis  
1 cm = 1 unit on y-axis

x	-3	-2	-1	0	$\frac{1}{2}$	1	2	3	4
y	-6	0	4	6	$6\frac{1}{4}$	6	4	0	-6



(ii) The roots of  $(x+2)(3-x) = 5$  are the same as the values of  $x$  which represent the abscissae of the pts. of intersection of the two curves  $\begin{cases} y = (x+2)(3-x) \\ y = 5 \end{cases}$  at  $A(-0.6, 5)$  and  $B(1.6, 5)$

$\therefore x = -0.6$  Ans. 1  
and  $x = 1.6$  Ans. 2

(iii) Draw the straight line  $y = x$ . It will intersect the original curve at pts.  $C(-2.4, -2.4)$  and at  $D(2.4, 2.4)$ . Between these two pts. the curve lies above the str. line  $y = x$   $\therefore (x+2)(3-x) > x$  when  $-0.6 < x < 2.4$  or when  $-0.6 < x < 2.4$  Ans.

Proof:  $\log(a+b) = \log a \left(1 + \frac{b}{a}\right)$   
 $= \log a^2 + \log\left(1 + \frac{b}{a} + \frac{b^2}{a^2}\right)$   
 $= 2 \log a + \log\left(1 + \frac{b}{a} + \frac{b^2}{a^2}\right)$  (L.E.D.) (10 marks)

(ii)  $\log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{2}{3} = \log \left(\frac{11}{15} \times \frac{490}{297}\right) - \log \frac{2^2}{3^2}$   
 $= \log \left[\frac{11}{15} \times \frac{490}{297} \div \frac{4}{9}\right] = \log \frac{11 \times 490 \times 9}{15 \times 297 \times 4} = \log \frac{11 \times 7 \times 5 \times 3^2 \times 3}{3 \times 3 \times 3 \times 3 \times 3 \times 7}$   
 $= \log \frac{11 \times 7 \times 5 \times 3^2 \times 3}{11 \times 7 \times 5 \times 3^3} = \log 2 = 0.3010$  Ans. (13 marks)

4. (i) Solve:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$

$\therefore 2(x-1) = 6(\sqrt{x}-1) + x-1$  or  $2x-2 = 6\sqrt{x}-6+x-1$

$\therefore 6\sqrt{x} = x+5$   $\therefore 36x = x^2+10x+25$   $\therefore x^2-26x+25=0$

$\therefore (x-25)(x-1) = 0$   $\therefore x=1$  Ans. 1 to be discarded as extraneous  
 $x=25$  Ans. 2

Alternatively:  $\sqrt{x}+1 = 3 + \frac{\sqrt{x}+1}{2}$  or  $2\sqrt{x}+2 = 6 + \sqrt{x}+1$  or  
 $\sqrt{x} = 5$   $\therefore x = 25$  Ans. (13 marks)

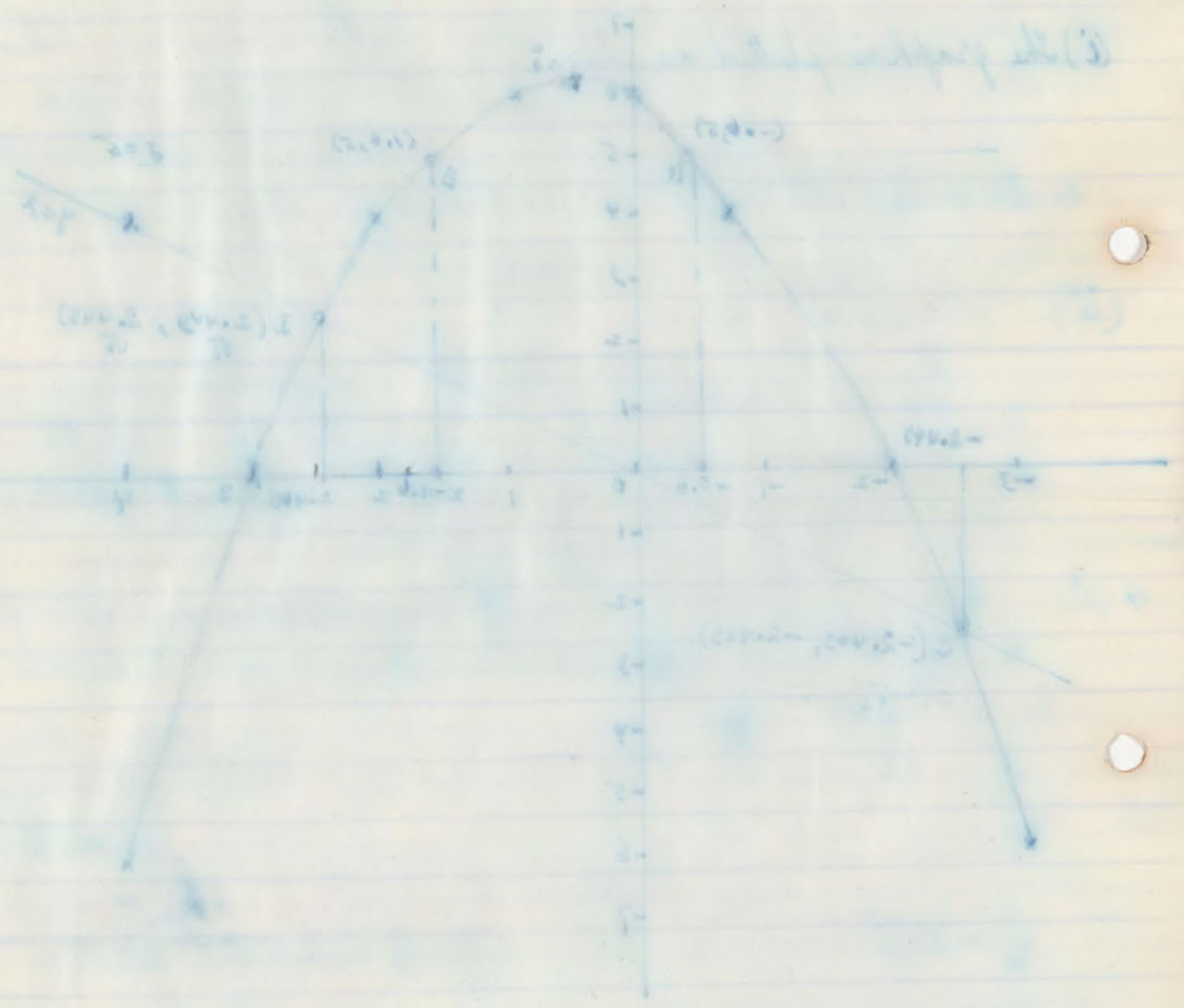
(ii)  $\sqrt{5} = 2.23607$  Find  $\sqrt{5^2-2}$

$\frac{\sqrt{5}-1}{3-4\sqrt{5}} = \frac{(3+4\sqrt{5})(\sqrt{5}-1)}{31-80} = \frac{(4\sqrt{5}+8)(\sqrt{5}-1)}{31-80} = \frac{20+8\sqrt{5}+8}{-49} = \frac{11+8\sqrt{5}}{-49}$

$= \frac{11+9.8886}{-49} = \frac{20.8886}{-49} = -0.4263$  correct to four dec. pl.  
 Ans. (12 marks)



1	2	3	4	5	6	7	8	9	10
0	0	4	0	0	3	4	0	2	1



(i)  $\log_2 8 = x \Rightarrow 2^x = 8 \Rightarrow 2^x = 2^3 \Rightarrow x = 3$   
 (ii)  $\log_2 16 = x \Rightarrow 2^x = 16 \Rightarrow 2^x = 2^4 \Rightarrow x = 4$   
 (iii)  $\log_2 32 = x \Rightarrow 2^x = 32 \Rightarrow 2^x = 2^5 \Rightarrow x = 5$   
 (iv)  $\log_2 64 = x \Rightarrow 2^x = 64 \Rightarrow 2^x = 2^6 \Rightarrow x = 6$   
 (v)  $\log_2 128 = x \Rightarrow 2^x = 128 \Rightarrow 2^x = 2^7 \Rightarrow x = 7$   
 (vi)  $\log_2 256 = x \Rightarrow 2^x = 256 \Rightarrow 2^x = 2^8 \Rightarrow x = 8$   
 (vii)  $\log_2 512 = x \Rightarrow 2^x = 512 \Rightarrow 2^x = 2^9 \Rightarrow x = 9$   
 (viii)  $\log_2 1024 = x \Rightarrow 2^x = 1024 \Rightarrow 2^x = 2^{10} \Rightarrow x = 10$

$$1. \quad 2 \times 4 - 3 \times 5 = 8 - 15 = -7 \quad \text{or} \quad 3 \times 2 - 5 \times 2 = 6 - 10 = -4$$

$$(ii) \quad 9 \times 6 \div (3 \times 4) = 3 \times 2 \times 3 \div (3 \times 2 \times 2) = 3 \times 2 \div 2 = 3 \times 1 = 3 \quad \text{Ans.} \quad (7 \text{ marks})$$

$$(iii) \quad (a) \quad \frac{8+4}{16^{\frac{1}{2}}} = \frac{2+2}{2^{\frac{1}{2}}} = \frac{2+2}{2^{\frac{1}{2}}} = \frac{2^{\frac{1}{2}}+2^{\frac{1}{2}}}{2^{\frac{1}{2}}} = \frac{2^{\frac{1}{2}}(1+1)}{2^{\frac{1}{2}}} = 2 \quad \text{Ans.} \quad (6 \text{ marks})$$

$$(b) \quad \frac{12 \times 18}{\sqrt{16} \times \sqrt{9}} = \frac{2 \cdot 6}{2 \cdot 3} = \frac{12}{6} = 2 \quad \text{Ans.} \quad (6 \text{ marks})$$

$$2. \quad 3 - 12(x^2) + 27 = 0 \Rightarrow (3^x)^2 - 12(3^x) + 27 = 0 \quad \text{or}$$

$$(3^x)^2 - 12(3^x) + 27 = 0 \Rightarrow (3^x - 3)(3^x - 9) = 0 \Rightarrow 3^x = 3 \Rightarrow x = 1$$

$$\text{or } 3^x = 9 \Rightarrow x = 2 \quad \text{Ans.} \quad (15 \text{ marks})$$

$$(i) \quad \log A = 1 \Rightarrow A = 10^1 = 10 \quad \text{(2 marks) } \therefore A = 10 \quad \text{Ans.}$$

$$\log B = -1 \Rightarrow B = 10^{-1} = \frac{1}{10} = 0.1 \quad \text{(2 marks) } \therefore B = 0.1 \quad \text{Ans.}$$

$$\log C = 2 \Rightarrow C = 10^2 = 100 = \left(\frac{100}{100}\right) = \left(\frac{1}{100}\right) = 50^2 = 2500 \quad \text{(2 marks) } \therefore C = 2500 \quad \text{Ans.}$$

$$\log D = -1 \Rightarrow D = 10^{-1} = \frac{1}{10} = 0.1 \quad \text{(2 marks) } \therefore D = 0.1 \quad \text{Ans.}$$

$$\log E = 2 \Rightarrow E = 10^2 = 100 \quad \text{(2 marks) } \therefore E = 100 \quad \text{Ans.}$$

Algebra  
3 Quarter Examination, April 1971.

Date: Tuesday 7/4/1971  
Time: 8:30 - 10:00 a.m.

Algebra  
class: 12th year

Answer all questions:

1. (i) Simplify:  $5 \times 4^{3x+1} - 20 \times 8^{2x}$  (6 marks)

(ii) Simplify:  $9^{2x+2} \times 6^{2x-3} \div (3^{2x} \times 6 \times 4^{x-1})$  (7 marks)

(iii) Evaluate: (a)  $\frac{100^{1/2} + 4^{1/2}}{16^{1/4}}$  (6 marks) (b)  $\frac{\sqrt{a^3} \cdot \sqrt[3]{b^2}}{\sqrt{a^2} \cdot \sqrt[6]{b^2}}$  when  $b=3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations: (10 marks)

$\log A = \frac{1}{2}$  ;  $\log B = -2$  ;  $\log C = -3$  ;  $\log D = -1$  ;  $\log E = 2$

3. (i) Prove that  $2 \log(x+y) = 2 \log x + \log\left(1 + \frac{y}{x} + \frac{y^2}{x^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[\log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9}\right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places, given:  $\sqrt{5} = 2.23607$  (12 marks)

SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

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answer all questions:

1. (i) Simplify:  $5 \times 4^{5n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a^3} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a^6} \cdot \sqrt[6]{b^{-2}}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$\log_{25} A = \frac{1}{2}$ ;  $\log_3 B = -2$ ;  $\log_{.02} C = -3$ ;  $\log_{-4} D = -1$ ;  $\log_{1.7} E = 2$

(10 marks)

3. (i) Prove that  $2 \log(a+b) = 2 \log a + \log\left(1 + \frac{2b}{a} + \frac{b^2}{a^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[ \log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9} \right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)  
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SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

Answer all questions:

1. (i) Simplify:  $5 \times 4^{3n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a^3} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a} \cdot \sqrt{b^{-2}}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$\log_{25} A = \frac{1}{2}$ ;  $\log_3 B = -2$ ;  $\log_{.02} C = -3$ ;  $\log_{-4} D = -1$ ;  $\log_{1.7} E = 2$

(10 marks)

3. (i) Prove that  $2 \log(a+b) = 2 \log a + \log\left(1 + \frac{2b}{a} + \frac{b^2}{a^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[ \log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9} \right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)

SHAMASH SECONDARY SCHOOL

4th quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

-----  
answer all questions:

1. (i) Simplify:  $5 \times 4^{5n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a^3} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a} \cdot \sqrt{b^{-2}}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$$\log_{25} A = \frac{1}{2}; \log_3 B = -2; \log_{.02} C = -3; \log_{-4} D = -1; \log_{1.7} E = 2$$

(10 marks)

3. (i) Prove that  $2 \log(a+b) = 2 \log a + \log \left(1 + \frac{2b}{a} + \frac{b^2}{a^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[ \log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9} \right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)  
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SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

-----  
answer all questions:

1. (i) Simplify:  $5 \times 4^{5n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a^5} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a^6} \cdot \sqrt[6]{b^{-2}}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$$\log_{25} A = \frac{1}{2}; \log_3 B = -2; \log_{.02} C = -3; \log_{-4} D = -1; \log_{1.7} E = 2$$

(10 marks)

3. (i) Prove that  $2\log(a+b) = 2\log a + \log\left(1 + \frac{2b}{a} + \frac{b^2}{a^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[\log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9}\right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)  
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SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

-----  
Answer all questions:

1. (i) Simplify:  $5 \times 4^{3n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a^3} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a^6} \cdot \sqrt{b^{-2}}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(5^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$\log_{25} A = \frac{1}{2}$ ;  $\log_3 B = -2$ ;  $\log_{.02} C = -3$ ;  $\log_{-4} D = -1$ ;  $\log_{1.7} E = 2$

(10 marks)

3. (i) Prove that  $2 \log(a+b) = 2 \log a + \log\left(1 + \frac{2b}{a} + \frac{b^2}{a^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[ \log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9} \right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)

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SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

Answer all questions:

1. (i) Simplify:  $5 \times 4^{3n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a} \cdot \sqrt{b-2}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$\log_{25} A = \frac{1}{2}$ ;  $\log_3 B = -2$ ;  $\log_{.02} C = -3$ ;  $\log_{-4} D = -1$ ;  $\log_{1.7} E = 2$

(10 marks)

3. (i) Prove that  $2 \log(a+b) = 2 \log a + \log\left(1 + \frac{2b}{a} + \frac{b^2}{a^2}\right)$  (12 marks)

(ii) Find the value of:  $\left[ \log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9} \right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)



SHAMSH SECONDARY SCHOOL

4th Quarter Examination, April, 1971

Subject: Algebra  
Class : 4th Year

Date: Tuesday 27.4.1971  
Time: 8:30 - 10:00 a.m.

answer all questions:

1. (i) Simplify:  $5 \times 4^{5n+1} - 20 \times 8^{2n}$  (6 marks)

(ii) Simplify:  $9^{2n+2} \times 6^{2n-3} \div (3^{5n} \times 6 \times 4^{n-2})$  (7 marks)

(iii) Evaluate: (a)  $\frac{8^{\frac{2}{3}} + 4^{\frac{3}{2}}}{16^{\frac{1}{4}}}$  (6 marks)

(b)  $\frac{\sqrt{a^3} \cdot \sqrt[3]{b^2}}{\sqrt[4]{a^6} \cdot \sqrt{b^{-2}}}$  when  $b = 3$  (6 marks)

2. (i) Find  $x$  from the equation  $9^x - 12(3^x) + 27 = 0$  (15 marks)

(ii) Find  $A, B, C, D$  and  $E$  from the following equations:

$\log_{25} A = \frac{1}{2}$ ;  $\log_3 B = -2$ ;  $\log_{.02} C = -3$ ;  $\log_{-4} D = -1$ ;  $\log_{1.7} E = 2$

(10 marks)

3. (i) Prove that  $2 \log(a+b) = 2 \log a + \log(1 + \frac{2b}{a} + \frac{b^2}{a^2})$  (12 marks)

(ii) Find the value of:  $\left[ \log \frac{11}{15} + \log \frac{490}{297} - 2 \log \frac{7}{9} \right]$ , given  $\log 2 = 0.3010$  (13 marks)

4. (i) Solve the equation:  $\frac{x-1}{\sqrt{x}-1} = 3 + \frac{\sqrt{x}+1}{2}$  (13 marks)

(ii) Find the value of  $\frac{\sqrt{5}-2}{9-4\sqrt{5}}$  correct to four decimal places,  
given:  $\sqrt{5} = 2.23607$

(12 marks)

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, March 1971

Subject : algebra  
Class : 4th Year, Scientific Section

Date : 23.3.1971  
Time : 8:30 - 10:00 a.m.

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I. (i) Show that the square of  $(x + 1)$  exactly divides

$$(x^3 + x^2 + 4)^2 - (x^3 - 2x + 3)^2$$

(15 marks)

(ii) If  $x + y = a$  and  $x - y = b$ , express  $(x^3 + y^3)$  in terms of  $a$  &  $b$ .

(15 marks)

II. (i) Plot the curve of the equation  $y = x^3 - 3x^2 - 9x + 3$  for values of  $x$  between  $x = -3$  and  $x = 5$ , choosing two cms as one unit on the  $x$  - axis and  $\frac{1}{2}$ cm as one unit on the  $y$  - axis.

(25 marks)

(ii) Find from your graph the maximum and the minimum values of  $y$  and the corresponding values of  $x$  at which  $y$  is maximum or minimum.

(15 marks)

(iii) From your graph find the roots of the equation  $x^3 - 3x^2 = 9x - 3$  correct at least to one decimal place.

(15 marks)

(iv) By plotting the straight line  $y = 8$  on the same diagram, find the roots of the equation  $x^3 - 3x^2 - 9x - 5 = 0$

(15 marks)

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(i)  $(x^2+x+4) - (x^2-2x+3)$  is divisible by  $x^2+x+4 - (x^2-2x+3)$  or by  $x^2+x+1$  since it is the difference between two cubes.  
 $\therefore$  the original expression is divisible by  $(x+1)$  Q.E.D.

(ii)  $x+y=a$   
 $x-y=b$   
 $\therefore 2x = a+b$   
 $x = \frac{1}{2}(a+b)$   
 $y = \frac{1}{2}(a-b)$

$$\therefore x^2+y^2 = \frac{1}{4}(a+b)^2 + \frac{1}{4}(a-b)^2 = \frac{1}{4}[(a+b)^2 + (a-b)^2]$$

$$= \frac{1}{4}[(a^2+2ab+b^2) + (a^2-2ab+b^2)]$$

$$= \frac{1}{4}[2a^2+2b^2] = \frac{1}{2}a^2 + \frac{1}{2}b^2 = \frac{1}{2}(a^2+b^2)$$

Alternatively:  $x^2+y^2 = (x+y)(x^2-xy+y^2) = (x+y)[(x-y)^2+xy]$   
 $= (x+y)[(x-y)^2 + \frac{1}{4}(x+y)^2 - (x-y)^2]$   
 $= a[b^2 + \frac{1}{4}(a^2-b^2)] = a[\frac{4b^2+a^2-b^2}{4}] = \frac{1}{4}a(a^2+3b^2)$  Ans.

If (i) The curve is plotted as shown in the diagram Ans. 1

(ii) the maximum value of  $y = 8$  at  $x = -1$   
 the minimum " "  $y = -24$  at  $x = 3$  } Ans. 2

(iii) The roots of the equation  $x^3-3x^2=9x-3$  are the same as the roots of the equation  $x^3-3x^2-9x+3=0$   
 $\therefore$  The roots are the values of  $x$  which make  $y=0$  in the equation  $y = x^3-3x^2-9x+3$   $\therefore$  the roots are the abscissas of the points of intersection of the curve  $y = x^3-3x^2-9x+3$  and the  $x$ -axis.  
 $\therefore x_1 = -2.1, x_2 = 0.29$  and  $x_3 = 4.73$  Ans. 3

(iv) The roots of the equation  $x^3-3x^2-9x-5=0$  are the same as the roots of  $x^3-3x^2-9x+3=8$   
 $\therefore$  the roots are the abscissas of the points of intersection of the two curves  $y = x^3-3x^2-9x+3$  and  $y = 8$   
 $\therefore r_1 = -1$  and  $r_2 = 5$  Ans. 4

*[Faint handwritten notes, possibly related to the first problem on the left page]*

(ii)  $x+y=a$   
 $x-y=b$   
 $\therefore 2x = a+b$   
 $x = \frac{1}{2}(a+b)$   
 $y = \frac{1}{2}(a-b)$

Alternatively:  $x^2+y^2 = (x+y)(x^2-xy+y^2) = (x+y)[(x-y)^2+xy]$   
 $= (x+y)[(x-y)^2 + \frac{1}{4}(x+y)^2 - (x-y)^2]$   
 $= a[b^2 + \frac{1}{4}(a^2-b^2)] = \frac{1}{4}a(a^2+3b^2)$  Ans.

If (i) The curve is plotted as shown in the diagram Ans. 1

(ii) the maximum value of  $y = 8$  at  $x = -1$   
 the minimum " "  $y = -24$  at  $x = 3$  } Ans. 2

(iii) The roots of the equation  $x^3-3x^2=9x-3$  are the same as the roots of the equation  $x^3-3x^2-9x+3=0$   
 $\therefore$  The roots are the values of  $x$  which make  $y=0$  in the equation  $y = x^3-3x^2-9x+3$   $\therefore$  the roots are the abscissas of the points of intersection of the curve  $y = x^3-3x^2-9x+3$  and the  $x$ -axis.  
 $\therefore x_1 = -2.1, x_2 = 0.29$  and  $x_3 = 4.73$  Ans. 3

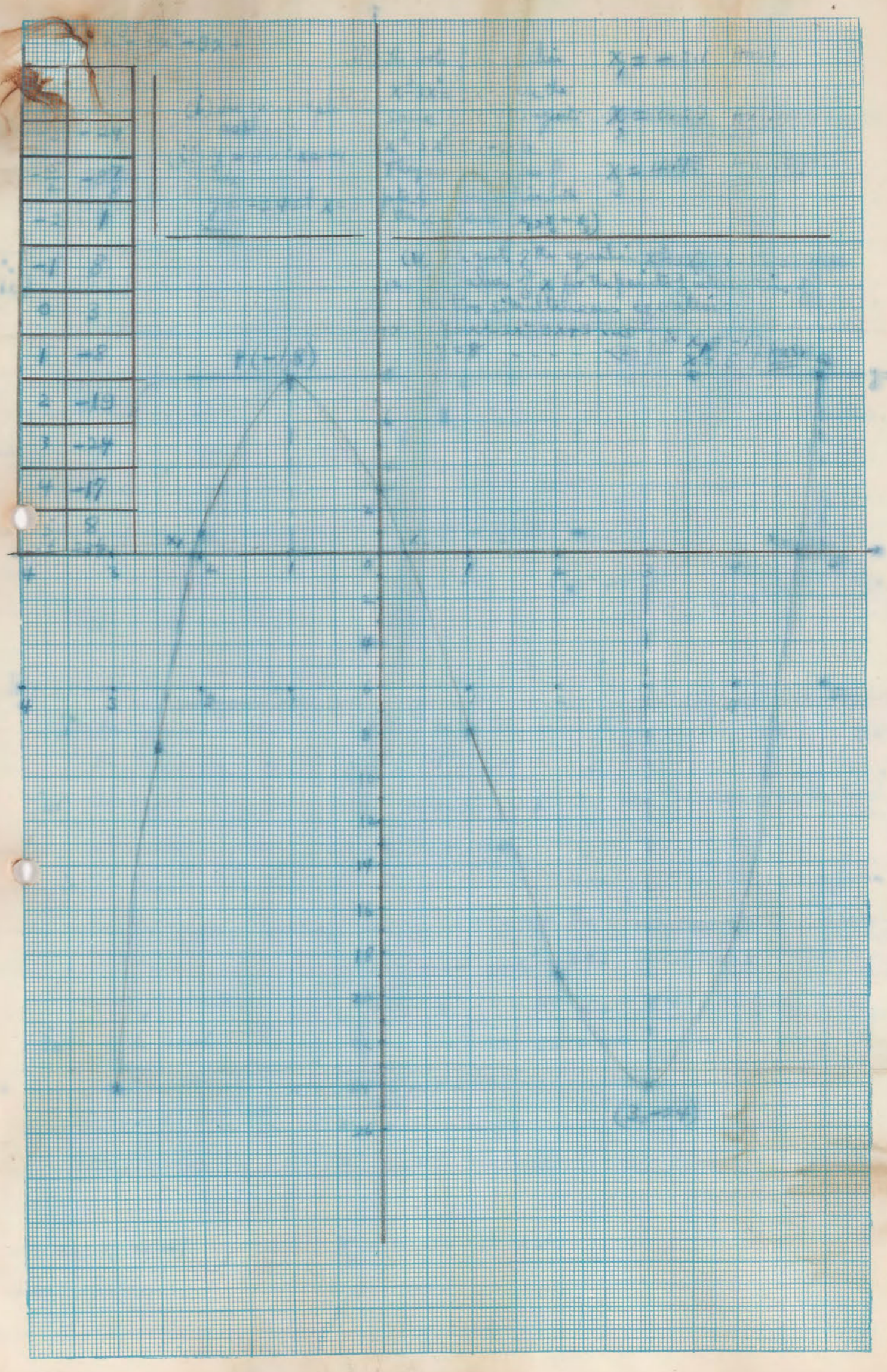
(iv) The roots of the equation  $x^3-3x^2-9x-5=0$  are the same as the roots of  $x^3-3x^2-9x+3=8$   
 $\therefore$  the roots are the abscissas of the points of intersection of the two curves  $y = x^3-3x^2-9x+3$  and  $y = 8$   
 $\therefore r_1 = -1$  and  $r_2 = 5$  Ans. 4

... (faint handwritten text)

(ii)  $x^2 + 2x + 1 = 0$   
 $x^2 + 2x + 1 = (x+1)^2 = 0$   
 $x+1 = 0$   
 $x = -1$

(i) The curve is plotted as shown in the figure. The vertex is at  $(-1, 0)$ .  
 (ii) The maximum value of  $y$  is  $0$  at  $x = -1$ .  
 (iii) The roots of the equation  $x^2 + 2x + 1 = 0$  are  $x = -1$  and  $x = -1$ .  
 (iv) The roots of the equation  $x^2 + 2x + 1 = 0$  are  $x = -1$  and  $x = -1$ .

... (faint handwritten text)



Date: 22/3/1911

Subject: Algebra  
Class: 14th Year, Boundary, Identification, Times: 8:20 - 10:20 a.m.

I (i) Show that the square of  $(x+1)$  exactly divides  $(x^3+x^2+4) - (x^2-x+3)$  (15 marks).

(ii) If  $x+y=a$  and  $x-y=b$ , express  $(x^2+y^2)$  in terms of  $a$  &  $b$ . (15 marks).

II. (i) Plot the curve of the equation  $y = x^3 - 3x^2 - 9x + 3$  for values of  $x$  between  $x = -3$  and  $x = 5$ , choosing  $\frac{1}{2}$  inch as one unit on the  $x$ -axis and one half of an inch as one unit on the  $y$ -axis. (20 marks).

(ii) Find from your graph the maximum and the minimum values of  $y$  and the corresponding values of  $x$  at which  $y$  is maximum or minimum. (10 marks)

(iii) From your graph find the roots of the equation  $x^3 - 3x^2 - 9x - 3 = 0$  correct at least to one decimal place. (15 marks).

(iv) By plotting the straight line  $y = 8$  on the same diagram, find the roots of the equation  $x^3 - 3x^2 - 9x - 5 = 0$ . (10 marks).

Remarks: The size of your graph paper is 3 inches by 7 inches. Take your  $x$ -axis parallel to the length longer side and the  $y$ -axis parallel to the shorter side of your paper.

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, March 1971

Subject : Algebra  
Class : 4th Year, Scientific Section

Date : 23.3.1971  
Time : 8:30 - 10:00 a.m.

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I. (i) Show that the square of  $(x + 1)$  exactly divides

$$(x^3 + x^2 + 4)^2 - (x^5 - 2x + 3)^2$$

(15 marks)

(ii) If  $x + y = a$  and  $x - y = b$ , express  $(x^3 + y^3)$  in terms of  $a$  &  $b$ .

(15 marks)

II. (i) Plot the curve of the equation  $y = x^3 - 3x^2 - 9x + 3$  for values of  $x$  between  $x = -3$  and  $x = 5$ , choosing two cms as one unit on the  $x$  - axis and  $\frac{1}{2}$ cm as one unit on the  $y$  - axis.

(25 marks)

(ii) Find from your graph the maximum and the minimum values of  $y$  and the corresponding values of  $x$  at which  $y$  is maximum or minimum.

(15 marks)

(iii) From your graph find the roots of the equation  $x^3 - 3x^2 = 9x - 3$  correct at least to one decimal place.

(15 marks)

(iv) By plotting the straight line  $y = 8$  on the same diagram, find the roots of the equation  $x^3 - 3x^2 - 9x - 5 = 0$

(15 marks)

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SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, March 1971

Subject : Algebra  
Class : 4th Year, Scientific Section

Date : 23.3.1971  
Time : 8:30 - 10:00 a.m.

-----

I. (i) Show that the square of  $(x + 1)$  exactly divides

$$(x^3 + x^2 + 4)^3 - (x^5 - 2x + 3)^3$$

(15 marks)

(ii) If  $x + y = a$  and  $x - y = b$ , express  $(x^3 + y^3)$  in terms of  $a$  &  $b$ .

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II. (i) Plot the curve of the equation  $y = x^3 - 3x^2 - 9x + 3$  for values of  $x$  between  $x = -3$  and  $x = 5$ , choosing two cms as one unit on the  $x$  - axis and  $\frac{1}{2}$ cm as one unit on the  $y$  - axis.

(25 marks)

(ii) Find from your graph the maximum and the minimum values of  $y$  and the corresponding values of  $x$  at which  $y$  is maximum or minimum.

(15 marks)

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(15 marks)

(iv) By plotting the straight line  $y = 8$  on the same diagram, find the roots of the equation  $x^3 - 3x^2 - 9x - 5 = 0$

(15 marks)

-----

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, March 1971

Subject : Algebra  
Class : 4th Year, Scientific Section

Date : 23.3.1971  
Time : 8:30 - 10:00 a.m.

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I. (i) Show that the square of  $(x + 1)$  exactly divides

$$(x^3 + x^2 + 4)^3 - (x^5 - 2x + 3)^3$$

(15 marks)

(ii) If  $x + y = a$  and  $x - y = b$ , express  $(x^3 + y^3)$  in terms of  $a$  &  $b$ .

(15 marks)

II. (i) Plot the curve of the equation  $y = x^3 - 3x^2 - 9x + 3$  for values of  $x$  between  $x = -3$  and  $x = 5$ , choosing two cms as one unit on the  $x$  - axis and  $\frac{1}{2}$ cm as one unit on the  $y$  - axis.

(25 marks)

(ii) Find from your graph the maximum and the minimum values of  $y$  and the corresponding values of  $x$  at which  $y$  is maximum or minimum.

(15 marks)

(iii) From your graph find the roots of the equation  $x^3 - 3x^2 = 9x - 3$  correct at least to one decimal place.

(15 marks)

(iv) By plotting the straight line  $y = 8$  on the same diagram, find the roots of the equation  $x^3 - 3x^2 - 9x - 5 = 0$

(15 marks)

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SHAMASH SECONDARY SCHOOL

Mid-Year Examination, January 1971

Subject: Algebra  
Class : 4th Year Scientific

Date: 3.2.1971  
Time: 8:30 - 11:00 a.m.

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answer all questions:

1. (i) Find the values of  $p$  and  $q$  so that  $(x + 1)$  and  $(x - 2)$  shall be factors of  $x^3 + px^2 + 2x + q$ . Hence, find the third factor.

(10 marks)

- (ii) Find the values of the constants  $A$ ,  $B$ ,  $C$  and  $D$  in the following identity:

$$x^3 - 5x^2 - x - 2 = Ax(x^2 - 1) + (B - C)x^2 + D(x^2 + 1)$$

(10 marks)

2. (i) Find the values of  $x$  and  $y$  in terms of  $a$ ,  $b$ ,  $c$  and  $d$  by solving the following two equations simultaneously:

$$\frac{x}{a} + \frac{y}{b} = \frac{d + c}{bd} \dots \dots \dots (1)$$

$$cx - dy = \frac{c(a - b)}{b} \dots \dots \dots (2)$$

(10 marks)

- (ii) Factor the following expressions:

(a)  $65x^2 - 108x - 77$

(b)  $2xy + z^2 - y^2 - x^2$

(c)  $x^8 + x^4y^4 + y^8$

(10 marks)

3. At what time between 5 o'clock and 6 o'clock will the two hands of the watch be at right angles for the second time?

(20 marks)

4. Two towns  $A$  and  $B$  are 40 miles apart. A train from town  $A$  and another train from town  $B$  leave the two towns at the same instant. It takes them 48 minutes to meet if they travelled towards each other on the straight line  $AB$ , and it takes them 4 hours to be together if they travelled in the direction  $AB$  produced. Find the speed of each of the two trains.

(20 marks)

5. (i) Solve the two simultaneous equations:

$$\frac{x + 2}{y - 4} + \frac{2(y - 4)}{x + 2} + 3 = 0 \dots \dots \dots (1)$$

$$x - y = 3 \dots \dots \dots (2)$$

(10 marks)

- (ii) Solve the equation:

$$2x^3 - 5x^2 = 4x - 3$$

(10 marks)

(i) Find the values of p and q so that (x+1) and (x-2) shall be factors of  $x^2 + px + q$  and hence find the 3rd factor.

Divide  $x^2 + px + q$  by  $x+1$  and  $x-2$

$x^2 + px + q$	$x^2 + x + 3 - p$	$x+1$
$(p-1)x + q$	$(p+1)x + 3 - p$	
$(p-1)x + (p-1)$	$(p+1)x - 2p - 2$	
$1$	$5 + p = 2nd \text{ remainder} = 0$	
$3 - p$		
$1 + p - 3 = 1st \text{ remainder} = 0$		

$p+1-3=0$  ... subtract 2 from 1:  
 $p+5=0 \Rightarrow p=-5$  and from 2:  $p-3=0 \Rightarrow p=3$   
 Third factor =  $x+1 = x-5+1 = (x-4)$  Ans.

Alternative method:  
 Let the remainder = 0, when  $x = -1$ , then  $x^2 + px + q = 0$   
 $(-1)^2 + p(-1) + q = 0 \Rightarrow 1 - p + q = 0$   
 $q = p - 1$   
 when  $x = 2$ , then  $x^2 + px + q = 0$   
 $2^2 + 4p + q = 0 \Rightarrow 4 + 4p + q = 0$   
 $q = -4 - 4p$   
 Equate the two values of q:  
 $p - 1 = -4 - 4p$   
 $5p = -3$   
 $p = -3/5$   
 So the 3rd factor:  $x^2 + px + q = x^2 - 3/5x - 13/5 = (x+1)(x-4)$

Ex. Find A, M and N such that  $2x^2 - x - 2 \equiv Ax(x-1) + B(x+1) + C(x-2)$   
 Let  $x=1$ , then  $2(1)^2 - 1 - 2 = A(1)(1-1) + B(1+1) + C(1-2)$   
 $2 - 1 - 2 = 0 + 2B - C$   
 $-1 = 2B - C$   
 Let  $x=-1$ , then  $2(-1)^2 - (-1) - 2 = A(-1)(-1-1) + B(-1+1) + C(-1-2)$   
 $2 + 1 - 2 = A(-1)(-2) + 0 + C(-3)$   
 $1 = 2A - 3C$   
 Let  $x=2$ , then  $2(2)^2 - 2 - 2 = A(2)(2-1) + B(2+1) + C(2-2)$   
 $8 - 2 - 2 = 2A + 3B + 0$   
 $4 = 2A + 3B$   
 Solving these equations:  
 $A = 1, B = -2, C = 1$

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$$(i) \frac{x}{a} + \frac{y}{b} = \frac{d+c}{bd} \quad \text{or} \quad bx + bdy = ad + ac \quad \text{--- (1)}$$

$$ax - dy = \frac{c(a-b)}{b} \quad \text{or} \quad abcx - bdy = ac - bc \quad \text{--- (2)}$$

$$\text{multiplying (1) by } b \text{ and (2) by } a: \quad b^2d + abdy = abd + abc \quad \text{--- (3)}$$

$$abcx - abdy = ac - abc \quad \text{--- (4)}$$

$$\text{adding (3) \& (4):} \quad (b^2d + abc)x = abd + ac$$

$$\therefore x = \frac{abd + ac}{b^2d + abc} = \frac{a(bd + ac)}{b(bd + ac)} = \frac{a}{b}$$

$$\text{from (1):} \quad \frac{x}{b} + \frac{y}{b} = \frac{d+c}{bd} \quad \text{or} \quad \frac{x+y}{b} = \frac{d+c}{bd} \quad \text{or} \quad d+by = b+c \quad \text{or} \quad y = \frac{c-a}{b}$$

$$\therefore x = \frac{a}{b} \\ y = \frac{c-a}{b} \quad \text{Ans.}$$

(ii) Factor:

$$(a) 6x^2 - 108x - 77 = (13x+7)(5x-11) \quad \text{Ans.}$$

$$(b) x^2y + y^2 - y^2 - x^2 = y^2 - (x^2 + y^2) = y^2 - (x+y)(x-y) = (y+x-y)(y-x+y) \quad \text{Ans.}$$

$$(c) x^2 + a^2y^2 + y^2 = x^2 + x^2y^2 + y^2 - x^2y^2 = (x^2 + y^2) - (x^2y^2) \\ = (x^2 + x^2y^2 + y^2)(x^2 - x^2y^2 + y^2) = (x^2 + x^2y^2 + y^2)(x^2 - x^2y^2 + y^2) \\ = [(x^2 + y^2) - (x^2y^2)](x^2 - x^2y^2 + y^2) = (x^2 - x^2y^2 + y^2)(x^2 + x^2y^2 + y^2) \quad \text{Ans.}$$

3. Let the time be  $x$  minutes past five

∴ the minutes hand will have rotated  $x$  divisions from its position at six past five opposite the hour hand, while the hour hand will have covered  $\frac{x}{12}$  divisions from its position



at six past five. But from the 12 o'clock position there are 25 divisions, ∴  $x = 25 + \frac{x}{12} + 10$  or  $x - \frac{x}{12} = 35$  or  $\frac{11x}{12} = 35$  or  $x = 37 \frac{7}{11}$  minutes =  $37 \frac{7}{11}$  minutes. Ans.



$AC = 45$   
 $CB = 40$   
 $CD = 10$   
 $AB = AC + CB = 45 + 40 = 85$   
 $AD = AC + CD = 45 + 10 = 55$   
 $BD = CB - CD = 40 - 10 = 30$   
 $AB + BD = 85 + 30 = 115$   
 $AD + AC = 55 + 45 = 100$   
 $AB + BD - AD - AC = 115 - 100 = 15$   
 $AB - AD = 15$   
 $85 - AD = 15$   
 $AD = 70$   
 $AC = 45$   
 $CD = AD - AC = 70 - 45 = 25$   
 $CB = 40$   
 $BD = CB - CD = 40 - 25 = 15$   
 $AB = 85$   
 $AD = 70$   
 $BD = 15$   
 $CD = 25$

i) Solve the two simultaneous equations:  
 $\frac{x+2}{y-4} + \frac{2(x-4)}{x+2} + 3 = 0$  ... (1)  
 $\frac{x+2}{x-7} + \frac{2(x-7)}{x+2} + 3 = 0$  ... (2)  
 From (1):  $y = x - 2$   
 Substitute into (2):  
 $\frac{x+2}{x-7} + \frac{2(x-7)}{x+2} + 3 = 0$   
 $(x+2)^2 + 2(x-7)^2 + 3(x-7)(x+2) = 0$   
 $6x^2 - 39x + 60 = 0$   
 $2x^2 - 13x + 20 = 0$   
 $(2x-5)(x-4) = 0$   
 $x = \frac{5}{2}$  or  $x = 4$   
 $y = -\frac{3}{2}$  or  $y = 1$

ii) Solve  $2x^3 - 5x^2 = 4x - 3$   
 $2x^3 - 5x^2 - 4x + 3 = 0$   
 By trial and error, when  $x = -1$ , the expression is 0.  
 $(x+1)$  is a factor.  
 $(x+1)(2x^2 - 7x + 3) = 0$   
 $(x+1)(2x-1)(x-3) = 0$   
 $x = -1$  (Ans.)  
 $x = \frac{1}{2}$  (Ans.)  
 $x = 3$  (Ans.)

SHAMASH SECONDARY SCHOOL

Mid-Year Examination, January 1971

Subject: Algebra  
Class : 4th Year Scientific

Date: 3.2.1971  
Time: 8:30 - 11:00 a.m.

-----

Answer all questions:

1. (i) Find the values of  $p$  and  $q$  so that  $(x + 1)$  and  $(x - 2)$  shall be factors of  $x^3 + px^2 + 2x + q$ . Hence, find the third factor.

(10 marks)

- (ii) Find the values of the constants  $A, B, C$  and  $D$  in the following identity:

$$x^3 - 5x^2 - x - 2 = Ax(x^2 - 1) + (B - C)x^2 + D(x^2 + 1)$$

(10 marks)

2. (i) Find the values of  $x$  and  $y$  in terms of  $a, b, c$  and  $d$  by solving the following two equations simultaneously:

$$\frac{x}{a} + \frac{y}{b} = \frac{d + c}{bd} \dots \dots \dots (1)$$

$$cx - dy = \frac{c(a - b)}{b} \dots \dots \dots (2)$$

(10 marks)

- (ii) Factor the following expressions:

(a)  $65x^2 - 108x - 77$

(b)  $2xy + z^2 - y^2 - x^2$

(c)  $x^8 + x^4y^4 + y^8$

(10 marks)

3. At what time between 5 o'clock and 6 o'clock will the two hands of the watch be at right angles for the second time?

(20 marks)

4. Two towns  $A$  and  $B$  are 40 miles apart. A train from town  $A$  and another train from town  $B$  leave the two towns at the same instant. It takes them 48 minutes to meet if they travelled towards each other on the straight line  $AB$ , and it takes them 4 hours to be together if they travelled in the direction  $AB$  produced. Find the speed of each of the two trains.

(20 marks)

5. (i) Solve the two simultaneous equations:

$$\frac{x + 2}{y - 4} + \frac{2(y - 4)}{x + 2} + 3 = 0 \dots \dots \dots (1)$$

$$x - y = 3 \dots \dots \dots (2)$$

(10 marks)

- (ii) Solve the equation:

$$2x^3 - 5x^2 = 4x - 3$$

(10 marks)

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SHALASH SECONDARY SCHOOL

Mid-Year Examination, January 1971

Subject: Algebra  
Class : 4th Year Scientific

Date: 3.2.1971  
Time: 8:30 - 11:00 a.m.

-----

Answer all questions:

1. (i) Find the values of  $p$  and  $q$  so that  $(x + 1)$  and  $(x - 2)$  shall be factors of  $x^3 + px^2 + 2x + q$ . Hence, find the third factor.

(10 marks)

- (ii) Find the values of the constants  $A, B, C$  and  $D$  in the following identity:

$$x^3 - 5x^2 - x - 2 = Ax(x^2 - 1) + (B - C)x^2 + D(x^2 + 1)$$

(10 marks)

2. (i) Find the values of  $x$  and  $y$  in terms of  $a, b, c$  and  $d$  by solving the following two equations simultaneously:

$$\frac{x}{a} + \frac{y}{b} = \frac{d + c}{bd} \dots \dots \dots (1)$$

$$cx - dy = \frac{c(a - b)}{b} \dots \dots \dots (2)$$

(10 marks)

- (ii) Factor the following expressions:

(a)  $65x^2 - 108x - 77$

(b)  $2xy + z^2 - y^2 - x^2$

(c)  $x^8 + x^4y^4 + y^8$

(10 marks)

3. At what time between 5 o'clock and 6 o'clock will the two hands of the watch be at right angles for the second time?

(20 marks)

4. Two towns A and B are 40 miles apart. A train from town A and another train from town B leave the two towns at the same instant. It takes them 48 minutes to meet if they travelled towards each other on the straight line AB, and it takes them 4 hours to be together if they travelled in the direction AB produced. Find the speed of each of the two trains.

(20 marks)

5. (i) Solve the two simultaneous equations:

$$\frac{x + 2}{y - 4} + \frac{2(y - 4)}{x + 2} + 3 = 0 \dots \dots \dots (1)$$

$$x - y = 3 \dots \dots \dots (2)$$

(10 marks)

- (ii) Solve the equation:

$$2x^3 - 5x^2 = 4x - 3$$

(10 marks)

4th Dec, 11/171 (2nd answer)

$$\frac{\frac{1}{4}x^6 + \frac{1}{3}x^5 + \frac{1}{4}x^4 + \frac{1}{5}x^3 + \frac{1}{6}x^2 + \frac{1}{6}x + \frac{1}{6}}{\frac{1}{4}x^3 + \frac{1}{3}x^2 + \frac{1}{4}x + \frac{1}{6}} \text{ Ans.}$$

$$\begin{array}{r} \frac{1}{4}x^3 + \frac{1}{3}x^2 + \frac{1}{4}x + \frac{1}{6} \\ \frac{1}{4}x^6 + \frac{1}{3}x^5 + \frac{1}{4}x^4 + \frac{1}{5}x^3 + \frac{1}{6}x^2 + \frac{1}{6}x + \frac{1}{6} \\ \hline \frac{1}{4}x^3 + \frac{1}{3}x^2 + \frac{1}{4}x + \frac{1}{6} \\ \hline \frac{1}{4}x^3 + \frac{1}{3}x^2 + \frac{1}{4}x + \frac{1}{6} \end{array}$$

2(i)  $x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x})$   
 Proof: R.H.S. =  $(x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) = x^3 + 3x^2(\frac{1}{x}) + 3x(\frac{1}{x^2}) + \frac{1}{x^3} - 3x - \frac{3}{x}$   
 $= x^3 + \frac{3x}{x} + 3x + \frac{3}{x} - 3x - \frac{3}{x}$   
 $= x^3 + \frac{1}{x^3}$  Q.E.D.

3)  $x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x})$   
 $= [x^3 - \frac{1}{x^3} - 3x^2(\frac{1}{x}) + 3x(\frac{1}{x^2})] + 3x^2(\frac{1}{x}) - 3x(\frac{1}{x^2})$   
 $= (x - \frac{1}{x})^3 + 3x - \frac{3}{x} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x})$  Q.E.D.

(ii)  $x + \frac{1}{x} = a \therefore x^2 + \frac{1}{x^2} = (x + \frac{1}{x})^2 - 2 = a^2 - 2 = x(x^2 - 3)$  Ans.  
 $x - \frac{1}{x} = b \therefore x^2 - \frac{1}{x^2} = (x - \frac{1}{x})^2 + 2 = b^2 + 2 = b(b^2 + 3)$

3(i)  $ax^2 + bx + c = 0 \therefore x^2 + \frac{b}{a}x + \frac{c}{a} = 0 \therefore x^2 + \frac{b}{a}x + (\frac{b}{2a})^2 = (\frac{b}{2a})^2 - \frac{c}{a}$   
 $\therefore (x + \frac{b}{2a})^2 = \frac{b^2}{4a^2} - \frac{c}{a} \therefore (x + \frac{b}{2a})^2 = \frac{b^2 - 4ac}{4a^2}$

$\therefore x + \frac{b}{2a} = \pm \frac{\sqrt{b^2 - 4ac}}{2a} \therefore x = -\frac{b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  (Q.E.D.)

(ii) Applying the above formula to solve  $3x^2 - 7x + 2 = 0$ , we obtain

$$x = \frac{7 \pm \sqrt{7^2 - 4 \times 3 \times 2}}{2 \times 3} = \frac{7 \pm \sqrt{49 - 24}}{6} = \frac{7 \pm \sqrt{25}}{6}$$

$\therefore x_1 = \frac{7 + 5}{6}$  and  $x_2 = \frac{7 - 5}{6}$  Ans.

4. Suppose that the two men start at the same time and meet at C both walking at the same speed.  
 $\therefore AC = 4(t - 2\frac{1}{2})$  and  $BC = 3t$   
 $\therefore 4(t - \frac{5}{2}) + 3t = 60 \therefore 4t - 10 + 3t = 60 \therefore 7t = 70 \therefore t = 10$  hours  
 $\therefore BC = 3t = 3 \times 10 = 30$  miles  
 they will meet at 10 o'clock p.m. Ans.  
 C is the midway between the two start towns. Ans.

$$5 (i) \frac{p}{(x-y)(y-z)} + \frac{r}{(y-z)(z-x)} + \frac{q}{(z-x)(x-y)} =$$

$$\frac{p+r}{(x-y)(z-x)} - \frac{r+p}{(y-z)(x-y)} - \frac{p+q}{(z-x)(y-z)} =$$

$$\frac{-(p+q)(y-z) - (r+p)(z-x) - (p+r)(x-y)}{(x-y)(y-z)(z-x)} =$$

$$= \frac{(q+r)(z-y) + (r+p)(x-z) + (p+q)(y-x)}{(x-y)(y-z)(z-x)} =$$

$$= \frac{yz - zy + rz - ry + rx - rz + px - pz + py - px + qy - qx}{(x-y)(y-z)(z-x)}$$

$$= \frac{p(y-z) + q(z-x) + r(x-y)}{(x-y)(y-z)(z-x)} \quad \underline{\text{Ans.}}$$



$$(ii) \left( \frac{x^2 - ax + x^2}{a-x} - \frac{x^2 + ax + x^2}{a+x} \right) \div \frac{x^3}{a^2 - x^2}$$

$$= \frac{x^3 + x^3 - (a^2 x^2)}{(a-x)(a+x)} \cdot \frac{a^2 - x^2}{x^3} = \frac{2x^3}{a^2 - x^2} \quad \underline{\text{Ans.}}$$

Handwritten mathematical work on the left page, including a diagram of a circle with points x, y, z and various algebraic derivations.

Handwritten mathematical work on the bottom left page, including a diagram of a circle with points x, y, z and various algebraic derivations.





Shamash Secondary  
2nd Year Examination

Date: 9/1/1971

Subject: Algebra  
Class: 4th Year Scientific

Time: 8:30 - 10:00 a.m.

1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^2 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$   
(20 marks)

2. (i) Prove the identities:

$$x^3 + \frac{1}{x^3} = \left(x + \frac{1}{x}\right)^3 - 3\left(x + \frac{1}{x}\right) \dots \dots \textcircled{1}$$

$$x^3 - \frac{1}{x^3} = \left(x - \frac{1}{x}\right)^3 + 3\left(x - \frac{1}{x}\right) \dots \dots \textcircled{2} \quad (14 \text{ marks})$$

(ii) Hence find the values of  $\left(x^3 + \frac{1}{x^3}\right)$  and  $\left(x^3 - \frac{1}{x^3}\right)$  in terms of  $a$  and  $b$   
if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$  (6 marks)

3. (i) Derive the quadratic formula for the solution of the equation  
 $ax^2 + bx + c = 0$  (10 marks)

(ii) Hence solve the equation  $3x^2 - 7x + 3 = 0$  (10 marks)

4. Two persons start at noon from towns 60 miles apart. One walks at the rate of 4 miles an hour, but stops  $2\frac{1}{2}$  hours on the road. The other walks at the rate of 3 miles an hour without stopping. When and where will they meet? (20 marks)

5. (i) Reduce to simplest form:

$$\frac{p+r}{(x-y)(z-y)} + \frac{r+p}{(y-z)(x-z)} + \frac{p+r}{(z-x)(y-x)} \quad (10 \text{ marks})$$

$$(ii) \left(\frac{a^2 - ax + x^2}{a-x} - \frac{a^2 + ax + x^2}{a+x}\right) \div \frac{x^3}{a^2 - x^2} \quad (10 \text{ marks})$$

SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class : 4th Year Scientific

Date: 7.1.1971  
Time: 8:30 - 10:00 a.m.

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1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

(20 marks)

2. (a) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

$$x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x}) \dots \dots \dots (2)$$

(14 marks)

(b) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

(6 marks)

3. (a) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$

(10 marks)

(b) Hence solve the equation  $3x^2 - 7x + 3 = 0$

(10 marks)

4. Two persons start at noon from towns 60 miles apart. One walks at the rate of 4 miles an hour, but stops  $2\frac{1}{2}$  hours on the road. The other walks at the rate of 3 miles an hour without stopping. When and where will they meet?

(20 marks)

5. Reduce to simplest form:

(i)  $\frac{q+r}{(x-y)(x-z)} + \frac{r+p}{(y-z)(y-x)} + \frac{p+q}{(z-x)(z-y)}$  (10 marks)

(ii)  $(\frac{a^2-ax+x^2}{a-x} - \frac{a^2+ax+x^2}{a+x}) \div \frac{x^3}{a^2-x^2}$  (10 marks)

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class : 4th Year Scientific

Date: 7.1.1971  
Time: 8:30 - 10:00 a.m.

- - -

1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

(20 marks)

2. (i) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

$$x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x}) \dots \dots \dots (2)$$

(14 marks)

(ii) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

(6 marks)

3. (i) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$

(10 marks)

(ii) Hence solve the equation  $3x^2 - 7x + 3 = 0$

(10 marks)

4. Two persons start at noon from towns 60 miles apart. One walks at the rate of 4 miles an hour, but stops  $2\frac{1}{2}$  hours on the road. The other walks at the rate of 3 miles an hour without stopping. When and where will they meet?

(20 marks)

5. Reduce to simplest form:

(i)  $\frac{q+r}{(x-y)(x-z)} + \frac{r+q}{(y-z)(y-x)} + \frac{p+q}{(z-x)(z-y)}$  (10 marks)

(ii)  $(\frac{a^2-ax-x^2}{a-x} - \frac{a^2+ax+x^2}{a+x}) \div \frac{x^2}{a^2-x^2}$  (10 marks)

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class: 4th Year Scientific

Date: 7.1.1971  
Time: 8:30 - 10:00 a.m.

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1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

(20 marks)

2. (i) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

$$x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x}) \dots \dots \dots (2)$$

(14 marks)

(ii) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

(6 marks)

3. (i) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$

(10 marks)

(ii) Hence solve the equation  $3x^2 - 7x + 3 = 0$

(10 marks)

4. Two persons start at noon from towns 60 miles apart. One walks at the rate of 4 miles an hour, but stops  $2\frac{1}{2}$  hours on the road. The other walks at the rate of 3 miles an hour without stopping. When and where will they meet?

(20 marks)

5. Reduce to simplest form:

(i)  $\frac{g+r}{(x-y)(x-z)} + \frac{r+g}{(y-z)(y-x)} + \frac{p+g}{(z-x)(z-y)}$  (10 marks)

(ii)  $(\frac{a^2-ax+x^2}{a-x} - \frac{a^2+ax+x^2}{a+x}) \div \frac{x^2}{a^2-x^2}$  (10 marks)

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class : 4th Year Scientific

Date: 7.1.1971  
Time: 8:30 - 10.00 a.m.

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1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

(20 marks)

2. (a) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

$$x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x}) \dots \dots \dots (2)$$

(14 marks)

(ii) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

(6 marks)

3. (a) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$

(10 marks)

(ii) Hence solve the equation  $3x^2 - 7x + 3 = 0$

(10 marks)

4. Two persons start at noon from towns 60 miles apart. One walks at the rate of 4 miles an hour, but stops  $2\frac{1}{2}$  hours on the road. The other walks at the rate of 3 miles an hour without stopping. When and where will they meet?

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5. Reduce to simplest form:

(i)  $\frac{q+r}{(x-y)(x-z)} + \frac{r+q}{(y-z)(y-x)} + \frac{p+q}{(z-x)(z-y)}$  (10 marks)

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class : 4th Year Scientific

Date: 7.1.1971  
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1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

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2. (i) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

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(14 marks)

(ii) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

(6 marks)

3. (i) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$ .

(10 marks)

(ii) Hence solve the equation  $3x^2 - 7x + 3 = 0$

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5. Reduce to simplest form:

(i)  $\frac{q+r}{(x-y)(x-z)} + \frac{r+q}{(y-z)(y-x)} + \frac{p+q}{(z-x)(z-y)}$  (10 marks)

(ii)  $(\frac{a^2-ax+x^2}{a-x} - \frac{a^2+ax+x^2}{a+x}) \div \frac{x^{\frac{3}{2}}}{a^2-x^2}$  (10 marks)

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class: 4th Year Scientific

Date: 7.1.1971  
Time: 8:30 - 10:00 a.m.

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1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

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2. (a) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

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(14 marks)

(ii) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$ .

(6 marks)

3. (a) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$

(10 marks)

(ii) Hence solve the equation  $3x^2 - 7x + 3 = 0$

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
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(ii) Hence find the values of  $(x^3 + \frac{1}{3})$  and  $(x^3 - \frac{1}{3})$  in terms of

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
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Date: 7.1.1971  
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- - -

1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

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$$x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x}) \dots \dots \dots (2)$$

(14 marks)

(ii) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

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3. (i) Derive the quadratic formula for the solution of the equation  $ax^2 + bx + c = 0$

(10 marks)

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subject: Algebra  
Class : 4th Year Scientific

Date: 7.1.1971  
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1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

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PROBATION REPORT  
FOR THE YEAR 1900

Name of Probationer: \_\_\_\_\_  
Age: \_\_\_\_\_ Sex: \_\_\_\_\_  
Occupation: \_\_\_\_\_

Place of Birth: \_\_\_\_\_

Education: \_\_\_\_\_

Character of Offense: \_\_\_\_\_

Place of Imprisonment: \_\_\_\_\_

Duration: \_\_\_\_\_

Conduct in Prison: \_\_\_\_\_

Reasons for Release: \_\_\_\_\_

Remarks: \_\_\_\_\_

Probationer's Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Probationer's Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

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SHAMASH SECONDARY SCHOOL

2ND QUARTER EXAMINATION

Subjects: Algebra  
Class : 4th Year Scientific

Date: 7.1.1971  
Time: 8:30 - 10:00 a.m.

- - -

1. Find the square root of:  $\frac{1}{4}x^6 + \frac{1}{4}x^3 + \frac{1}{3}x^4 + \frac{1}{6}x + \frac{1}{9}x^2 + \frac{1}{16}$

(20 marks)

2. (a) Prove the identities:

$$x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x}) \dots \dots \dots (1)$$

$$x^3 - \frac{1}{x^3} = (x - \frac{1}{x})^3 + 3(x - \frac{1}{x}) \dots \dots \dots (2)$$

(14 marks)

(b) Hence find the values of  $(x^3 + \frac{1}{x^3})$  and  $(x^3 - \frac{1}{x^3})$  in terms of

a and b if  $x + \frac{1}{x} = a$  and  $x - \frac{1}{x} = b$

( 6 marks)

3. (a) Derive the quadratic formula for the solution of the equation  
 $ax^2 + bx + c = 0$

(10 marks)

(b) Hence solve the equation  $3x^2 - 7x + 3 = 0$

(10 marks)

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5. Reduce to simplest form:

(a)  $\frac{q+r}{(x-y)(x-z)} + \frac{r+q}{(y-z)(y-x)} + \frac{p+q}{(z-x)(z-y)}$  (10 marks)

(b)  $(\frac{a^2 - ax - x^2}{a-x} - \frac{a^2 + ax + x^2}{a+x}) \div \frac{x^2}{a^2 - x^2}$  (10 marks)

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Maths Exam, 4th Year, 18/11/1910

1. Divide  $(\frac{x^5}{4} + 9 - \frac{4x^2}{4} - x^4 + \frac{11x}{4} - \frac{3x}{4})$  by  $(\frac{x^2}{2} + 3 - x)$

$$\begin{array}{r} \frac{x^5}{4} - x^4 + 11x - \frac{3x}{4} + 9 \\ \underline{-(\frac{1}{2}x^5 - \frac{3}{2}x^3 + \frac{3}{2}x)} \\ -\frac{5}{2}x^4 + \frac{17}{2}x^3 - \frac{45}{4}x^2 + 9 \\ \underline{-(\frac{5}{4}x^4 + \frac{17}{8}x^3 - \frac{45}{4}x^2)} \\ -\frac{5}{4}x^3 + \frac{15}{8}x^2 - 15x \\ \underline{-(\frac{5}{8}x^3 + \frac{15}{8}x^2 - \frac{15}{4}x)} \\ \frac{x^2}{8} + \frac{17}{4}x - \frac{15x}{4} \\ \underline{-(\frac{1}{2}x^2 - 3x + 9)} \\ \frac{3}{8}x^2 - 3x + 9 \end{array}$$

(12 marks)

2. If  $(x^2 + Ax + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of  $A$  and  $B$ .

$$\begin{array}{r} x-1 \mid x^2 + Ax + Bx - 6 \quad \mid x^2 + 4x + 4 + 1 \quad \mid x-2 \mid \\ \underline{x^2 - x} \qquad \qquad \qquad \underline{x^2 - 2x} \qquad \qquad \qquad \underline{x^2 - 2x} \\ (A+1)x + 6 \qquad \qquad \qquad (A+4)x + 4 + 1 \qquad \qquad \qquad (A-2)x + 4 + 1 \\ \underline{(A+1)x - (A+1)} \qquad \qquad \qquad \underline{(A+4)x - (A+4)} \qquad \qquad \qquad \underline{(A-2)x - (A-2)} \\ (A+5)x - 5 \qquad \qquad \qquad (A+4)x - (A+4) \qquad \qquad \qquad (A-2)x - (A-2) \\ \underline{(A+5)x - (A+5)} \qquad \qquad \qquad \underline{(A+4)x - (A+4)} \qquad \qquad \qquad \underline{(A-2)x - (A-2)} \\ -5 \qquad \qquad \qquad -4 \qquad \qquad \qquad -2 \end{array}$$

$A+B=5$   
 $3A+B=-7$   
 $2A=-1$   
 $A=-\frac{1}{2}$   
 $B=5\frac{1}{2}$

(12 marks)

Now alternate method: By the remainder theorem, the expression is zero when  $x=1$  or  $x=2$ .  
 $x=1 \Rightarrow 1^2 + A(1) + B(1) - 6 = 0$  or  $A+B=5$   
 $x=2 \Rightarrow 2^2 + A(2) + B(2) - 6 = 0$  or  $4A+2B=0$   
 $A+B=5$   
 $4A+2B=0$   
 $A=-\frac{1}{2}$   
 $B=5\frac{1}{2}$

$4x^2 + 12x - 25 = 0$   
 $x = \frac{-12 \pm \sqrt{144 - 4(4)(-25)}}{2(4)}$   
 $x = \frac{-12 \pm \sqrt{144 + 400}}{8}$   
 $x = \frac{-12 \pm \sqrt{544}}{8}$   
 $x = \frac{-12 \pm 23.75}{8}$   
 $x = \frac{11.75}{8} = 1.47$   
 $x = \frac{-35.75}{8} = -4.47$

3.  $0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 3 = 0$

$\frac{21}{99}x - \frac{2(2x-3)}{0.6} + \frac{x+1}{11} + 3 = 0$

$\frac{7}{33}x - \frac{10(2x-3)}{3} + \frac{x+1}{11} + 3 = 0$

$7x - 11(2x-3) + 3x+3 + 33 = 0$

$7x - 22x + 33 + 3x + 3 + 33 = 0$

$-12x = -69 \quad \therefore x = \frac{69}{12} = 5.75$

$x = 5.75$  Ans.

(13 marks)

4. Speed      Time      Distance

12	30	42
8	3	2
8	3	34
8	3	84

$x = \frac{42 \times 5x}{10x} = 34$  miles

$x = \frac{5x}{1} = 72$  miles

but  $\frac{72}{1} \text{ min} = \frac{72 \times 3}{3} = \frac{216}{3} = 72$  min

(15 marks)

Quadratic Equations

Subject: Algebra Part II  
Class: 4<sup>th</sup> year

Date: 18/11/1970  
Time: 9:30 - 10:00 a.m.

Attempt all questions:

1. Divide  $(x^3 + 2x^2 - 4x + 11)$  by  $(x + 3)$ . (12 marks)
2. If  $(x^2 + 11x + 6)$  is divisible by  $(x - 1)$  and by  $(x - 2)$ , find the value of  $a$  and  $b$  and find the third factor. (10 marks)

Solve the equations:

$$2x^2 - \frac{x-5}{2} + \frac{x+1}{11} = 0$$

(13 marks)

4. 12 men can dig a ditch 42 meters long in 3 days. How many men will be required to dig the latter ditch of length 120 meters knowing that each man's work is equivalent to that of 3 boys. (10 marks)

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

P a p e r II

Subject : Algebra  
Class : 4th year Secondary

Date : 18.11.1970  
Time : 8:30 - 10:00 a.m.

-----

Attempt all questions:

1. Divide  $(\frac{3x^5}{4} + 27 - \frac{43x^2}{4} - 4x^4 + \frac{77x^3}{8} - \frac{33x}{4})$  by  $(\frac{x^2}{2} + 3 - x)$ .

(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

3. Solve the equation:

$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

(13 marks)

4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked 10 days, knowing that each man's work is equivalent to that of 3 boys?

(13 marks)



الرقم :  
الاسم :

SHAMASH SECONDARY SCHOOL

1st Quarter Examination, November, 1970

Paper I

=====

Subject : General Mathematics  
Class : 4th Year Secondary

Date : 16.11.1970  
Time : 12:00 - 1:00 p.m.

1. Give the English Equivalent of the following, filling the blanks in this sheet and hand it over with your examination book.

Figures or numerals	١ - أرقام
Digits	٢ - مراتب
Abstraction	٣ - الدان
Factors	٤ - العوامل
Divisors or aliquot parts	٥ - أسس القوة
Multiple	٦ - مضاعف
Consecutive even numbers	٧ - أعداد زوجية متتالية
Consecutive odd numbers	٨ - أعداد فردية متتالية
The integral part of a number	٩ - الجزء الصحيح من العدد
Prime numbers or Primes	١٠ - أعداد أولية
The least Common Denominator	١١ - المقام المشترك الأصغر
Improper Fraction	١٢ - كسر لفظي
The reciprocal of a number	١٣ - مقلوب العدد
Terminated or Terminating Decimals	١٤ - الكسور العشرية المنتهية
Recurring or repeating decimals or fractions	١٥ - الكسور العشرية الدورية
The Circumference of a circle	١٦ - المحيط المقوس
Ratio and Proportion	١٧ - النسبة والتناسب
The mean proportional between two numbers	١٨ - الوسط المتناسب بين عددين
The Dividend	١٩ - ربح المساع ( ربح حامل الأسهم )
Axiom	٢٠ - البديهية
Postulate	٢١ - الموضوعية
Acute angle	٢٢ - زاوية حادة
Obtuse angle	٢٣ - زاوية منفرجة
Reflex angle	٢٤ - زاوية منعكسة

٢٥ - قامة دائرة

٢٦ - قاع دائرة

٢٧ - المالحم

٢٨ - المباحيل

٢٩ - زاويتان متتامتان

٣٠ - زاويتان متكاملتان

٣١ - مثلع متساوي الاضلاع

٣٢ - مثلث متساوي الساقين

٣٣ - المعين

٣٤ - المحل الهندسي

٣٥ - المستقيم القاطع للدائرة

٣٦ - ازالة وادخال الاقواس

٣٧ - نقل حدود المعادلة من جهة الى الجهة الاخرى

٣٨ - متطابقة

٣٩ - متباينة

٤٠ - مقدار جبري متجانس

٤١ - درجة المقار الجبري

٤٢ - المماس الحرفي

٤٣ - مقدار جبري من الدرجة الثانية

٤٤ - ان عددي الكسر هما بسطه ومقامه

٤٥ - في كل عملية قسمة يوجد مقسوم ومقسوم عليه وناتج قسمة وفي بعض الحالات باق للقسمة.

In every process of division there are a dividend, a divisor, a quotient and in some cases a remainder.

٤٦ - ان الاعددة المنصفة لاضلاع مثلث تلتقي في مركز الدائرة المرسومة .....

The perpendicular bisectors of the sides of a triangle meet in a point which is the centre of the circumscriptal circle.

٤٧ - ان الخطوط المتوسطة في المثلث تلتقي في نقطة واحدة تقسم كلا منها الى ثلثين من جهة الرأس وثلث من جهة القاعدة. وتسمى هذه النقطة مركز ثقل المثلث.

The medians in a triangle meet in a point which divides each one of them from the vertex and one-third from the base. This point is called the centroid of the triangle.

٤٨ - نقيس طول مستقيم فنجد انه يساوي ٤١ سم. ثم نجد فيما بعد ان طوله المنضبوط ٤٠ سم.

وفي هذه الحالة نقول ان الخطأ المطلق هو ..... والخطأ النسبي هو .....

We measure the length of a straight line and we find that it is 41 cm. We then find that its exact length is 40 cm. In this case we say that the absolute error is 1 cm and the relative error is 1/40 = 2.5%.

٤٩ - ان قيمة المقدار ٤٦٠.٩٦٢ لأقرب أربعة ارقام صحيحة هي .....

The value of the number 460.962 correct to 4 significant figures is 461.0.

٥٠ - أن المعادلة ٣س - ٢س + س = ٥ - ٥س هي معادلة من الدرجة ..... في .....

The equation 3x - 2x + x = 5 - 5x is an equation of the first degree in one unknown.

The absolute error is 1.5 cm, and the relative error is 1.5/40 = 3.75%. The percentage error is 3.75%.

(50 marks)

The absolute error is 1.5 cm, and the relative error is 1.5/40 = 3.75%. The percentage error is 3.75%.

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 ١٠٠- ...

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

Paper II

Subject : Algebra  
Class : 4th year Secondary

Date : 18.11.1970  
Time : 8:30 - 10:00 a.m.

Attempt all questions:

1. Divide  $(\frac{3x^5}{4} + 27 - \frac{43x^2}{4} - 4x^4 + \frac{77x^3}{8} - \frac{33x}{4})$  by  $(\frac{x^2}{2} + 3 - x)$ .  
(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.  
(12 marks)

3. Solve the equation:  
 $0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$   
(13 marks)

4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked 10 days, knowing that each man's work is equivalent to that of 3 boys?  
(13 marks)

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

Paper II

Subject : Algebra  
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(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

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$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

(13 marks)

4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked D days, knowing that each man's work is equivalent to that of 3 boys?

(13 marks)

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

Paper II

Subject : Algebra  
Class : 4th year Secondary

Date : 18.11.1970  
Time : 8:30 - 10:00 a.m.

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(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

3. Solve the equation:

$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

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4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked  $D$  days, knowing that each man's work is equivalent to that of 3 boys?

(13 marks)

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

P a p e r II

Subject : Algebra  
Class : 4th year Secondary

Date : 18.11.1970  
Time : 8:30 - 10:00 a.m.

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Attempt all questions:

1. Divide  $(\frac{3x^5}{4} + 27 - \frac{43x^2}{4} - 4x^4 + \frac{77x^3}{8} - \frac{33x}{4})$  by  $(\frac{x^2}{2} + 3 - x)$ .

(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

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$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

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(13 marks)

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

Paper II

Subject : Algebra  
Class : 4th year Secondary

Date : 18.11.1970  
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Attempt all questions:

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(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

3. Solve the equation:

$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

(13 marks)

4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked  $D$  days, knowing that each man's work is equivalent to that of 3 boys?

(13 marks)

SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

P a p e r II

Subject : Algebra  
Class : 4th year Secondary

Date : 18.11.1970  
Time : 8:30 - 10:00 a.m.

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Attempt all questions:

1. Divide  $(\frac{3x^5}{4} + 27 - \frac{43x^2}{4} - 4x^4 + \frac{77x^3}{8} - \frac{33x}{4})$  by  $(\frac{x^2}{2} + 3 - x)$ .

(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

3. Solve the equation:

$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

(13 marks)

4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked 10 days, knowing that each man's work is equivalent to that of 3 boys?

(13 marks)



SHAMASH SECONDARY SCHOOL

1ST. QUARTER EXAMINATION

P a p e r II

Subject : Algebra  
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(12 marks)

2. If  $(x^3 + Ax^2 + Bx - 6)$  is divisible by  $(x-1)$  and by  $(x-2)$ , find the values of A and B and find the third factor.

(12 marks)

3. Solve the equation:

$$0.21x - \frac{4x-6}{0.6} + \frac{x+1}{11} + 9 = 0$$

(13 marks)

4. 12 men work 3 days to dig a ditch 42 metres long. How long a ditch can 8 men dig in 9 days? How many boys will be required to dig the latter ditch if they worked D days, knowing that each man's work is equivalent to that of 3 boys?

(13 marks)

الرقم :  
الاسم :

SHAMASH SECONDARY SCHOOL

1st Quarter Examination, November, 1970

Paper I

=====

Subject : General Mathematics  
Class : 4th Year Secondary

Date : 16.11.1970  
Time : 12:00 - 1:00 p.m.

1. Give the English Equivalent of the following, filling the blanks in this sheet and hand it over with your examination book.

١ - أرقام

٢ - مراتب

٣ - الدارج

٤ - العوامل

٥ - أس القوة

٦ - مضاعف

٧ - أعداد زوجية متتالية

٨ - أعداد فردية متتالية

٩ - الجزء الصحيح من العدد

١٠ - أعداد أولية

١١ - المقام المشترك الأصغر

١٢ - كسر لفظي

١٣ - مقلوب العدد

١٤ - الكسور العشرية المنتهية

١٥ - الكسور العشرية الدورية

١٦ - الخطأ المئوي

١٧ - النسبة والتناسب

١٨ - الوسط المتناسب بين عددين

١٩ - ربح المساهم ( ربح حامل الأسهم )

٢٠ - البدئية

٢١ - الموضوع

٢٢ - زاوية حادة

٢٣ - زاوية منفرجة

٢٤ - زاوية منمكسة

٢٥ - قطعة دائرة

٢٦ - قطاع دائرة

٢٧ - المحاليم

٢٨ - المماسيل

٢٩ - زاويتان متتامتان

٣٠ - زاويتان متكاملتان

٣١ - مضلع متساوي الأضلاع

٣٢ - مثلث متساوي الساقين

٣٣ - المعين

٣٤ - المحل الهندسي

٣٥ - المستقيم القاطع للدائرة

٣٦ - ازالة وادخال الاقواس

٣٧ - نقل حدود المعادلة من جهة الى الجهة الأخرى

٣٨ - متطابقة

٣٩ - متباينة

٤٠ - مقدار جبري متجانس

٤١ - درجة المقنار الجبري

٤٢ - المماس الحرفي

٤٣ - مقدار جبري من الدرجة الثانية

٤٤ - ان عددي الكسر هما بسطاه ومقامه

٤٥ - في كل عملية قسمة يوجد مقسوم ومقسوم عليه وناتج قسمة وفي بعض الحالات باق للقسمة.

٤٦ - ان الأعمدة المنسفة لأضلاع مثلث تلتقي في مركز الدائرة المرسومة .....

٤٧ - ان الخطوط المتوسطة في المثلث تلتقي في نقطة واحدة تقسم كلا منها الى ثلثين من جهة الرأس وثلث من جهة القاعدة. وتسمى هذه النقطة مركز ثقل المثلث.

٤٨ - نقيس طول مستقيم فنجد انه يساوي ٤١ سم. ثم نجد فيما بعد أن طوله المنبسط ٤٠ سم. وفي هذه الحالة نقول ان الخطأ المطلق هو ..... والخطأ النسبي هو .....

٤٩ - ان قيمة المقدار  $6x^2 + 6x - 6$  لأقرب أربعة أرقام معنوية هي .....

٥٠ - أن المعادلة  $3x^2 - 2x + 5 = 0$  - مع - مع هي معادلة من الدرجة ..... في .....

(50 marks)

1. Give the English Equivalents of the following, filling the blanks in this sheet and hand it over with your examination book.

- ١ - ...
- ٢ - ...
- ٣ - ...
- ٤ - ...
- ٥ - ...
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- ٨ - ...
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- ١٥ - ...
- ١٦ - ...
- ١٧ - ...
- ١٨ - ...
- ١٩ - ...
- ٢٠ - ...

- ٢٦- ايجاد جذور
- ٢٧- ايجاد الجذور
- ٢٨- ايجاد الجذور
- ٢٩- ايجاد الجذور
- ٣٠- ايجاد الجذور
- ٣١- ايجاد الجذور
- ٣٢- ايجاد الجذور
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- ٤٧- ايجاد الجذور
- ٤٨- ايجاد الجذور
- ٤٩- ايجاد الجذور
- ٥٠- ايجاد الجذور

(20 marks)

$$\begin{aligned}
 (i) \quad & x^2 + (a+b)x + ab = (x+a)(x+b) \\
 (ii) \quad & a^2b + bc^2 - b^2c - ac^2 = (a^2b - b^2c) + (bc^2 - ac^2) \\
 & = b^2(a-c) + c^2(b-a) \\
 & = (a-c)(b^2 - c^2) = (a-c)(b+c)(b-c) \\
 (iii) \quad & b^2c^2 + a^2c^2 - b^2c - ac^2 = (b^2c^2 - b^2c) + (a^2c^2 - ac^2) \\
 & = b^2c(b-c) + a^2c(a-c) \\
 & = (b-c)(b^2c) + (a-c)(a^2c) \\
 (iv) \quad & \sqrt{x^2 - 1} = \sqrt{(x-1)(x+1)} = \sqrt{x-1} \sqrt{x+1} \\
 & \text{Let } \sqrt{x-1} = u \text{ and } \sqrt{x+1} = v \\
 & \text{Then } u^2 = x-1 \text{ and } v^2 = x+1 \\
 & \text{Subtracting } u^2 \text{ from } v^2 \text{ gives } v^2 - u^2 = 2 \\
 & (v+u)(v-u) = 2 \\
 & \text{Let } v+u = 2 \text{ and } v-u = 1 \\
 & \text{Adding gives } 2v = 3 \Rightarrow v = \frac{3}{2} \\
 & \text{Then } u = 2 - v = 2 - \frac{3}{2} = \frac{1}{2} \\
 & \text{So } \sqrt{x-1} = \frac{1}{2} \text{ and } \sqrt{x+1} = \frac{3}{2} \\
 & \text{Squaring gives } x-1 = \frac{1}{4} \text{ and } x+1 = \frac{9}{4} \\
 & \text{Adding gives } 2x = \frac{10}{4} \Rightarrow x = \frac{5}{4} \\
 & \text{Then } y = \sqrt{x-1} = \frac{1}{2} \\
 & \text{So } x = \frac{5}{4} \text{ and } y = \frac{1}{2} \\
 & \text{Check: } \left(\frac{5}{4}\right)^2 + \left(\frac{1}{2}\right)^2 = \frac{25}{16} + \frac{4}{16} = \frac{29}{16} \\
 & \text{But } 2 = \frac{32}{16} \text{ so it does not work.} \\
 & \text{Let } v+u = 1 \text{ and } v-u = 2 \\
 & \text{Adding gives } 2v = 3 \Rightarrow v = \frac{3}{2} \\
 & \text{Then } u = 1 - v = 1 - \frac{3}{2} = -\frac{1}{2} \\
 & \text{So } \sqrt{x-1} = -\frac{1}{2} \text{ and } \sqrt{x+1} = \frac{3}{2} \\
 & \text{Squaring gives } x-1 = \frac{1}{4} \text{ and } x+1 = \frac{9}{4} \\
 & \text{Adding gives } 2x = \frac{10}{4} \Rightarrow x = \frac{5}{4} \\
 & \text{Then } y = \sqrt{x-1} = \frac{1}{2} \\
 & \text{So } x = \frac{5}{4} \text{ and } y = \frac{1}{2} \\
 & \text{Check: } \left(\frac{5}{4}\right)^2 + \left(\frac{1}{2}\right)^2 = \frac{25}{16} + \frac{4}{16} = \frac{29}{16} \\
 & \text{But } 2 = \frac{32}{16} \text{ so it does not work.} \\
 \end{aligned}$$

(20 marks)

$$N = \sqrt[3]{\frac{(0.002016)^2 (\sin 41^\circ 22')^3}{(25.01)^2 (\tan 76^\circ 14')}}^3$$

$$\begin{aligned} \log 0.002016 &= \bar{3}.3045 \\ \log \sin 41^\circ 22' &= \bar{1}.8201 \\ \log 25.01 &= 1.3981 \\ \log \tan 76^\circ 14' &= 0.6108 \end{aligned}$$

$$\begin{array}{l} 2 \log 0.002016 = \bar{6}.6090 \\ 3 \log \sin 41^\circ 22' = \bar{5}.4603 \\ \log 25.01 = 1.3981 \\ \log \tan 76^\circ 14' = 0.6108 \\ \hline \log N = \bar{5}.4153 \\ \log N = 5.4153 \\ \log N = 12.6534 \\ \log N = 2.739267 = \bar{2}.7392 \\ N = 5427 \times 10^{-2} \\ = 0.05427 \end{array}$$

(10 marks)

(ii) Compute the value of  $\log(0.2000)^7 = x$

$$\therefore x = \frac{\log(0.2000)^7}{\log 7} = \frac{7 \log 0.2000}{\log 7} = \frac{7 \times \bar{1}.3010}{0.8451}$$

$$x = \frac{2.0070}{0.8451} = \frac{-1.8704}{0.8451} = -\frac{18704}{8451} = -1.6512 \text{ Ans.}$$

~~$x = 2.34639$  or  $2.3488$  Correct answer is  $x = 2.232 \times 10^2$  or  $x = 10.02232$~~

(10 marks)

4(i) The distances fallen during the different successive seconds form an A.P. in which  $a = 16$  cm,  $n = t$  since the distances are 16, 48, 80, ...

$\therefore$  total distance  $S = \frac{t}{2} \{2a + (n-1)d\} = \frac{t}{2} \{2 \times 16 + (t-1)32\}$   
 $\therefore s = \frac{t}{2} \{32 + 32t - 32\} \therefore s = 16t^2$  Ans. 1

Hence at the end of ten seconds i.e. when  $t = 10$ ,  $s = 16(10)^2 = 1600$  cm

(ii)  $S_n = \frac{(-2)^n - 1}{6}$  when  $n=1$ ,  $S_1 = \frac{-2-1}{6} = -\frac{3}{6} = -\frac{1}{2}$   
when  $n=2$ ,  $S_2 = \frac{(-2)^2 - 1}{6} = \frac{4-1}{6} = \frac{3}{6} = \frac{1}{2}$   
when  $n=3$ ,  $S_3 = \frac{(-2)^3 - 1}{6} = \frac{-8-1}{6} = -\frac{9}{6} = -\frac{3}{2}$

$\therefore$  1st term =  $-\frac{1}{2}$   
2nd term =  $\frac{1}{2} - (-\frac{1}{2}) = 1$   
3rd term =  $-\frac{3}{2} - \frac{1}{2} = -2$   
Hence the progression is  $-\frac{1}{2}, 1, -2, \dots$

This is a G.P. in which  $a = -\frac{1}{2}$ ,  $r = -2$

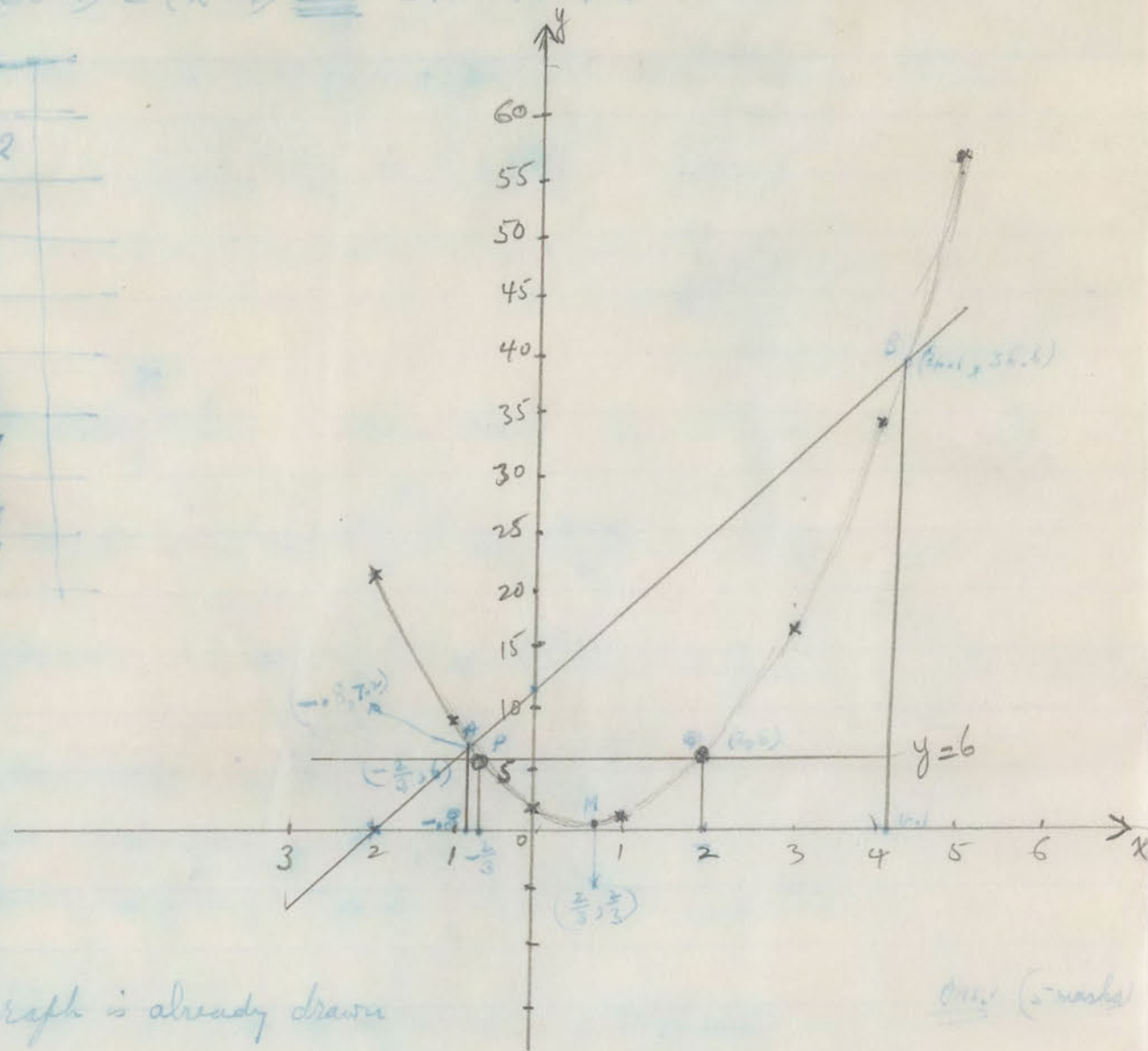
$\therefore S_{10} = \frac{a(1-r^{10})}{1-r} = \frac{-\frac{1}{2}[1 - (-2)^{10}]}{1 - (-2)} = \frac{[-2^{10} - 1]}{6} = \frac{-1024 - 1}{6}$

$\therefore S_{10} = \frac{-1025}{6} = -170.8\bar{3}$  Ans. (10 marks)

5(i) Draw the graph of:  $y = (2x-1)^2 - (x^2-1)$  for values of  $x$  from -2 to 5.

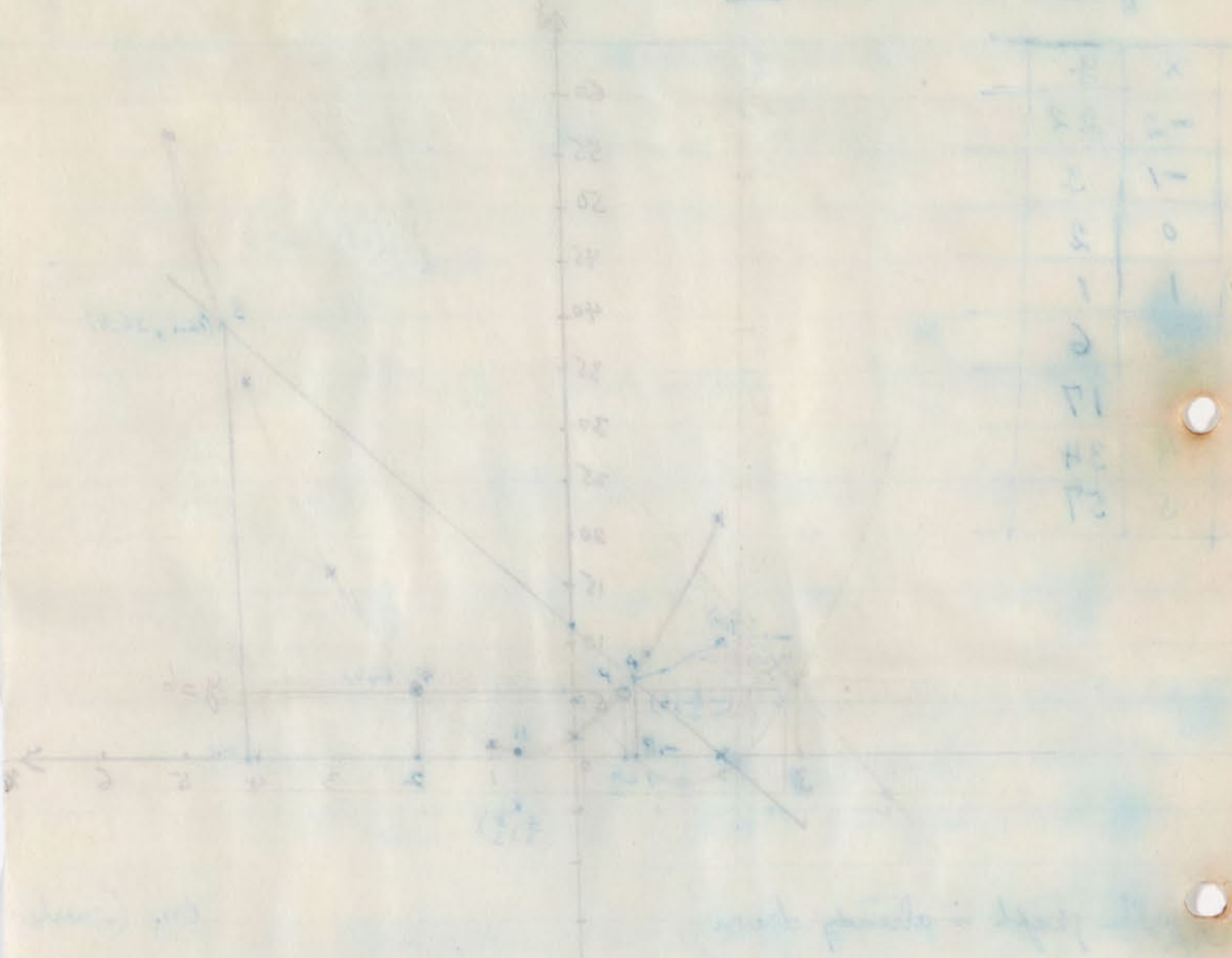
$$y = (2x-1)^2 - (x^2-1) \equiv 3x^2 - 4x + 2$$

x	y
-2	22
-1	9
0	2
1	1
2	6
3	17
4	34
5	57

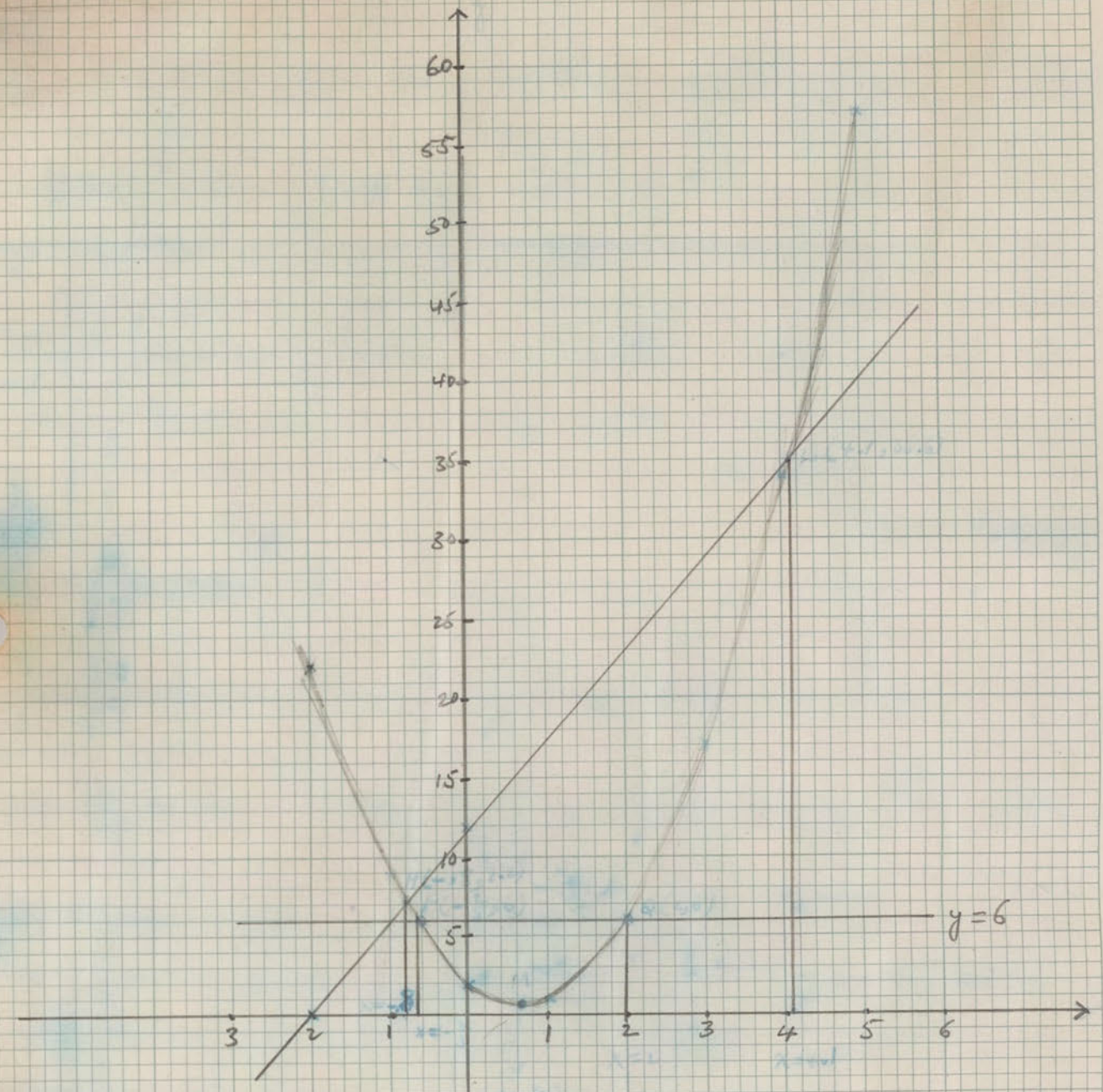


- (i) The graph is already drawn (1 mark)
- (ii) when  $y=6$ , at Point P,  $x = -\frac{1}{3}$  at point Q,  $x=2$  Ans. 2 (5 marks)
- (iii) The least value of  $y$  is  $\frac{2}{3}$  at  $x = \frac{2}{3}$  i.e.  $y_{\min} = \frac{2}{3}$  (5 marks)
- (iv) The values of  $x$  satisfying the equation  $3x^2 - 4x + 2 = 0$  are the abscissae of the points A + B i.e.  $x = -0.5$  and  $x = 4.1$  (4 marks)

$$y = (x-1)^2 - 1 \Rightarrow y = x^2 - 2x$$



x	y
0	6
1	0
2	0
3	6
4	18
5	30



(i) The graph is a parabola  
 (ii) The vertex of the parabola is at (1, -1)  
 (iii) The parabola passes through the points (0, 0) and (2, 0)  
 (iv) The line passes through the points (0, 6) and (4, 35)



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(iii)  $b^3 + c^3 - 1 + 3bc$  (4 marks).

(b) Express the following quantity in its simplest form :

$$\sqrt[3]{x^3 - 1 - 3x(x-1)}$$
 (8 marks).

2. Find the positive numerical values of a and b which will make  $41x^2 - 60xy + 104y^2$  identical with  $(ax + by)^2 + 4(bx - ay)^2$  (20 marks).

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 (10 marks).

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 (10 marks).

4. (i) A body which falls freely from rest travels 16 ft the first second, 48 ft the 2nd second, 80 ft the 3rd second and so on. Derive a formula for the total distance S fallen by the body at the end of t seconds. Hence or otherwise find the total distance fallen by the body during the first 10 seconds. (10 marks).

(ii) The sum of the first n terms of a certain series is given by the

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1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$

$$\frac{21(x-1)(x^2+x+1) - (x+1)(x^2+x+1) - 2(10x-1)(x-1)}{6(x+1)(x-1)(x^2+x+1)}$$

$$\frac{21(x^3-1) - (x^3+2x^2+2x+1) - 2(10x^2-1)(x-1)}{6(x+1)(x-1)(x^2+x+1)}$$

$$\frac{21x^3-21-x^3-2x^2-2x-1-20x^3+2x^2+20x-2}{6(x+1)(x-1)(x^2+x+1)}$$

$$\frac{18x^3-24}{6(x+1)(x^2-1)} = \frac{6(3x-4)}{6(x+1)(x-1)} = \frac{3x-4}{(x+1)(x-1)} \text{ Ans. (6 marks)}$$

(b)  $\left[ \frac{\sqrt{x+a}}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^2-a^2}}{\sqrt{x+a}+a}$

$$\frac{x+a-(x-a)}{\sqrt{x^2-a^2}} \cdot \frac{\sqrt{x-a}(x^2+2ax+a^2)}{\sqrt{x^2+2ax+a^2} \cdot \sqrt{x+a}+a} = \frac{2a}{\sqrt{x^2-a^2}} \cdot \frac{\sqrt{x-a}(x+a)}{\sqrt{x+a}+a}$$

$$= \frac{2a\sqrt{x-a}}{\sqrt{x-a}\sqrt{x+a}} \cdot \frac{2a}{\sqrt{x+a}} \text{ Ans. (2 marks)}$$

(ii) Given that  $1+2+3+\dots+n = \frac{1}{2}n(n+1)$

and  $1^2+2^2+3^2+\dots+n^2 = \frac{1}{6}n(n+1)(2n+1)$

To evaluate:  $\frac{1^2+2^2+3^2+\dots+40^2}{1+2+3+\dots+40} = \frac{\frac{1}{6}(40)(40+1)(2 \cdot 40+1)}{\frac{1}{2}(40)(40+1)} = \frac{31}{3} = 27 \frac{2}{3}$  Ans. (2 marks)

2. (i) (a)  $y^2-2y-2=0 \therefore (y-1)(y+1)=0$

$\therefore y=1$  or  $y=-1$  Ans. (2 marks)

(b)  $(\log x)^2 - 3 \log x + 2 = 0$

Ans:  $(\log x - 1)(\log x - 2) = 0 \therefore \log x = 1$  or  $\log x = 2$   
 $\therefore x = 8$  or  $x = 64$  Ans. (2 marks)

2(ii)  $N = \sqrt[5]{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(57.03)^3 (\tan 81^\circ 43')^2}}$

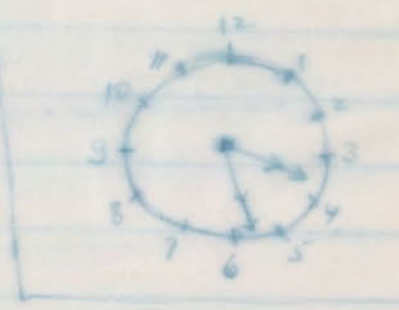
$\log 0.002003 = \bar{3}.3016$	$2 \log \cos 33^\circ 20' = \bar{1}.8438$	$3 \log 57.03 = 5.1237$
$\log \cos 33^\circ 20' = \bar{1}.9219$	$2 \log \tan 81^\circ 43' = 1.6738$	
$\log 57.03 = 1.7079$	$\log \text{Num.} = \bar{9}.7486$	$\log \text{Den.} = 6.7975$
$\log \tan 81^\circ 43' = 0.8269$	$\log \text{Den.} = 6.7975$	
$\therefore 5 \log N = \bar{16}.9511$		
$\therefore \log N = \bar{4}.99022$		
$\therefore N = 3.777 \times 10^{-4}$		
$\therefore N = 0.0009777$		Ans. (10 marks)

3. Suppose the man began walking x minutes after 3 o'clock and ended his walk y minutes after five o'clock

①  $x = 15 + \frac{x}{12} \therefore 12x = 180 + x \therefore 11x = 180$   
 $\therefore x = \frac{180}{11} = 16 \frac{4}{11}$  minutes Ans. 1

② also  $y = 25 + \frac{y}{12}$  or  $12y = 300 + y$  or  $11y = 300$   
 $\therefore y = \frac{300}{11} = 27 \frac{3}{11}$  minutes Ans. 2

$\therefore$  He began at  $16 \frac{4}{11}'$  past 3, and ended  $27 \frac{3}{11}'$  past 5.  
 He walked  $5:27 \frac{3}{11} - 3:16 \frac{4}{11} = 2$  hours  $10 \frac{10}{11}$  minutes Ans. 3

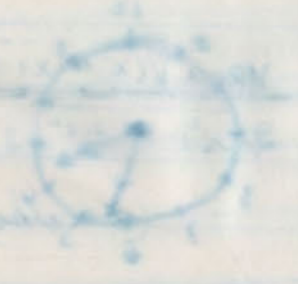


4(i). The circumferences of the arches are  $10\pi$  Cms. } We are to find the sum of  
 " " " " " " " " " " " " " " } the both arches  $18\pi$  Cms. } ten terms of an A.P. in which  
 $a = 10\pi, l = 18\pi, n = 10 \therefore S = \frac{n}{2}(a+l) = \frac{10}{2}(10\pi + 18\pi)$   
 $\therefore S = 5 \times 28\pi = 5 \times 28 \times \frac{22}{7} = 5 \times 4 \times 22 = 440$  Cms. = total length of wire Ans. (10 marks)

(ii)  $l_2 = 15, (a)(l_2) = 75$ . If  $a = 1$  then  $l_1 = 75$  and  $r = 75$  or else  
 then  $ar = 15 \therefore$  ①  $\therefore ar^2 = 75$  --- ② } Dividing ② by ①  
 and  $(a)(ar^2) = 75$  --- ③ }  $\frac{ar^2}{ar} = \frac{75}{15} \therefore r = \frac{5}{3} \therefore l_1 = 15$   
 $\therefore r = 45$  and  $l_2 = ar = 45(\frac{5}{3}) = 75$  }  $\therefore$  A.P. is 45, 15, 5,  $\frac{5}{3}$  } Ans. (10 marks)

*[Faint handwritten notes at the top of the page, mostly illegible.]*

*[Faint handwritten notes in the middle section, including some calculations.]*



*[Faint handwritten notes and calculations in the lower middle section.]*

*[Faint handwritten notes and calculations at the bottom of the page.]*



$y = x^2 - x - 2$  ... ①  
 $y = \frac{x+6}{3}$  ... ②



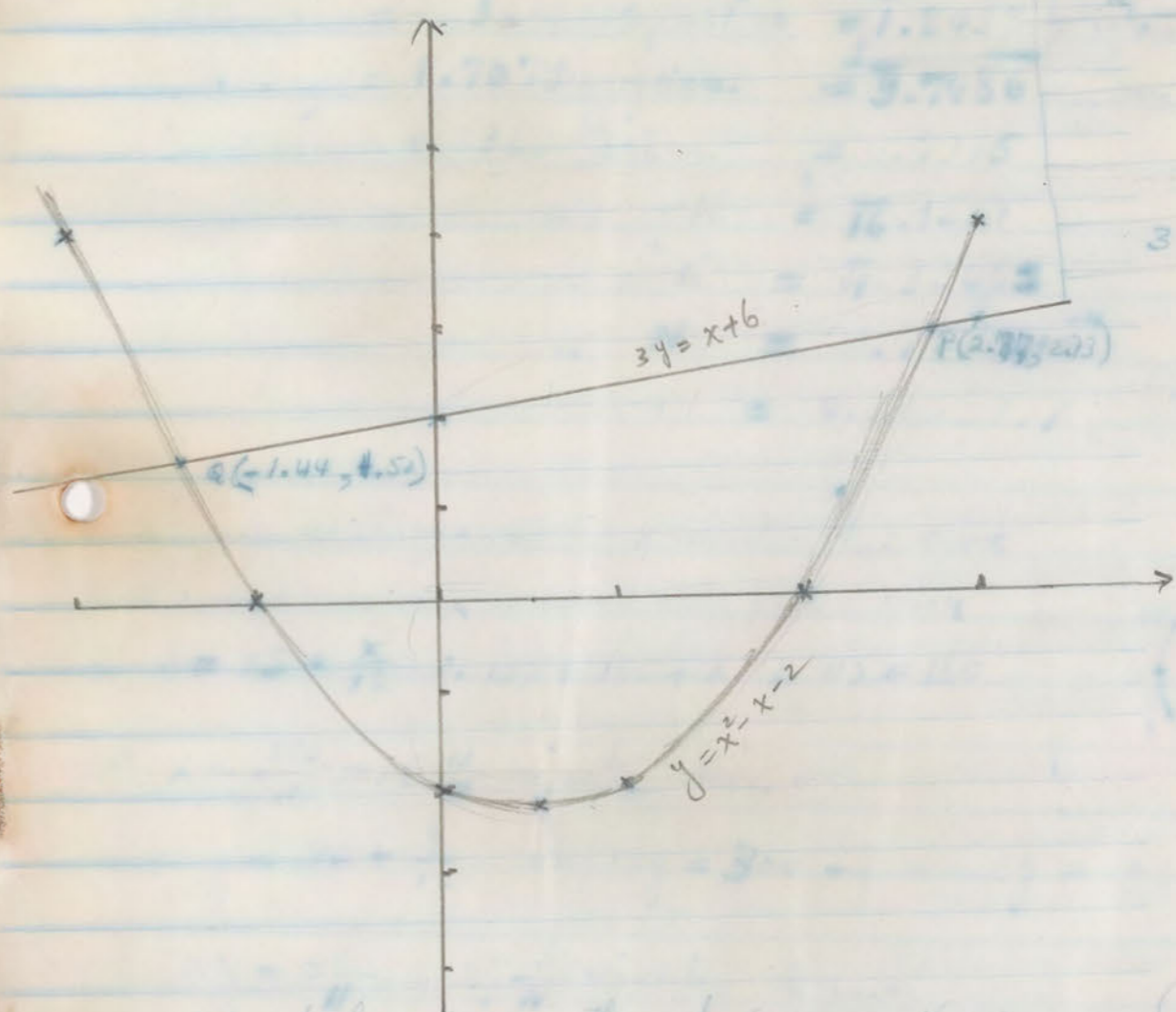
$x^2 - x - 2 = \frac{x+6}{3}$   
 $3x^2 - 3x - 6 = x + 6$   
 $3x^2 - 4x - 12 = 0$

$x = 2.77$  and  $x = -1.44$

(ii) The straight line passes through (0,2) and (3,3) (5 marks)

(i)  $y = x^2 - x - 2$  ... ①  
 $y = \frac{x+6}{3}$  ... ② (5 marks)

$y = \frac{x+6}{3}$	$x$	$y = x^2 - x - 2$
	-2	4
	-1	0
2	0	-2
	$\frac{1}{2}$	$-2\frac{1}{4}$
	1	-2
	2	0
3	3	4



(ii) The straight line passes through (0,2) and (3,3) (5 marks)

(iii) The solution of  $3x^2 - 4x - 12 = 0$  gives the x values of x in the solution of the two simultaneous equations ①  $y = x^2 - x - 2$  and ②  $y = \frac{x+6}{3}$  since when  $x^2 - x - 2 = \frac{x+6}{3}$ , we obtain:  
 $3x^2 - 3x - 6 = x + 6$  or  $3x^2 - 4x - 12 = 0$   
 the two graphs intersect at P(2.77, 2.77) and Q(-1.44, 1.52)  
 ∴ the solutions of  $3x^2 - 4x - 12 = 0$  are the abscissae of the points P + Q or  
 $x = 2.77$  and  $x = -1.44$  Ans. (5 marks)

(iv) The straight line  $y = \frac{x+6}{3}$  is above the curve  $y = x^2 - x - 2$  from P to Q or for  $x = -1.44$  to  $x = 2.77$  and since we are required to state the positive values of x only, ∴  $\frac{1}{3}(x+6) > x^2 - x - 2$  when  $0 < x < 2.77$  Ans. (5 marks)

Subject: Algebra  
Class : 5th Year

SHAMASH SECONDARY SCHOOL  
Final Examination, May, 1970.

Date : 28/5/1970.  
Time : 8:00-10:00 a.m.

Answer all questions:

1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)

(b)  $\left[ \frac{x+a}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)

(ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
and :  $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{1}{6}n(n+1)(2n+1)$  ,

evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)

2. (i) Solve the equations :

(a)  $y^2 - 3y + 2 = 0$  , (3 marks)

(b)  $(\log_8 x)^2 - 3 \log_8 x + 2 = 0$ . (7 marks)

(ii) Compute by logarithms the value of N :

$$N = \sqrt{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(51.03)^3 (\tan 81^\circ 43')^2}}$$
 (10 marks)

3. A man started for a walk when the hands of his watch were coincident between three and four o'clock. When he finished, the hands were again coincident between five and six o'clock. What was the time when he started, and how long did he walk ? (20 marks)

4. (i) The radius of the smallest of ten equally spaced concentric circles, made of wire, is 5cm and the radius of the largest is 9cm. Calculate, in meters, the total length of wire required to make the ten circles. (Take  $\pi$  as  $\frac{22}{7}$ ) (10 marks)

(ii) The second term of a geometric progression is 15 and the product of the first and fourth terms is 75. Calculate the first and third terms. (10 marks)

5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)

(ii) Using the same scale and axes draw the graph of  $3y = x + 6$ . (5 marks)

(iii) From your graphs, find :

(a) the values of x for which  $3x^2 - 4x - 12 = 0$  , (5 marks)

(b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks).

Subject: Algebra  
Class : 4th Year

SHAMASH SECONDARY SCHOOL  
Final Examination, May, 1970.

Date : 28/5/1970.  
Time : 8:00-10:00 a.m.

Answer all questions:

1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)

(b)  $\left[ \frac{\sqrt{x+a}}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)

(ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
and :  $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{1}{6}n(n+1)(2n+1)$  ,

evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)

2. (i) Solve the equations :  
(a)  $y^2 - 3y + 2 = 0$  (3 marks)

(b)  $(\log x)^2 - 3 \log x + 2 = 0$ . (7 marks)

(ii) Compute by logarithms the value of N :

$$N = \sqrt[5]{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(51.03)^3 (\tan 81^\circ 43')^2}}$$
 (10 marks)

3. A man started for a walk when the hands of his watch were coincident between three and four o'clock. When he finished, the hands were again coincident between five and six o'clock. What was the time when he started, and how long did he walk ? (20 marks)

4. (i) The radius of the smallest of ten equally spaced concentric circles, made of wire, is 5cm and the radius of the largest is 9cm. Calculate, in meters, the total length of wire required to make the ten circles. (Take  $\pi$  as  $\frac{22}{7}$ ) (10 marks)

(ii) The second term of a geometric progression is 15 and the product of the first and fourth terms is 75. Calculate the first and third terms. (10 marks)

5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)

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(b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks)

Subject: Algebra  
 Class : 5th Year

SHAMASH SECONDARY SCHOOL  
 Final Examination, May, 1970.

Date : 28/5/1970.  
 Time : 8:00-10:00 a.m.

Answer all questions:

1. (i) Simplify:
  - (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)
  - (b)  $\left[ \frac{\sqrt{x+a}}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)
- (ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
 and :  $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{1}{6}n(n+1)(2n+1)$  ,  
 evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)
2. (i) Solve the equations :
  - (a)  $y^2 - 3y + 2 = 0$  (3 marks)
  - (b)  $(\log_8 x)^2 - 3 \log_8 x + 2 = 0$ . (7 marks)
- (ii) Compute by logarithms the value of N :
 
$$N = \sqrt[5]{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(51.03)^3 (\tan 81^\circ 43')^2}}$$
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5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)
- (ii) Using the same scale and axes draw the graph of  $3y = x + 6$ . (5 marks)
- (iii) From your graphs, find :
  - (a) the values of x for which  $3x^2 - 4x - 12 = 0$  (5 marks)
  - (b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks).

Answer all questions:

1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)

(b)  $\left[ \frac{\sqrt{x+a}}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)

(ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
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evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)

2. (i) Solve the equations :

(a)  $y^2 - 3y + 2 = 0$  , (3 marks)

(b)  $(\log x)^2 - 3 \log x + 2 = 0$ . (7 marks)

(ii) Compute by logarithms the value of N :

$$N = \sqrt[5]{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(51.03)^3 (\tan 81^\circ 43')^2}}$$
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5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)

(ii) Using the same scale and axes draw the graph of  $3y = x + 6$ . (5 marks)

(iii) From your graphs, find :

(a) the values of x for which  $3x^2 - 4x - 12 = 0$  , (5 marks)

(b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks).

Answer all questions:

1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)

(b)  $\left[ \frac{\sqrt{x+a}}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)

(ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
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evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)

(i) Solve the equations :

(a)  $y^2 - 3y + 2 = 0$  (3 marks)

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$$N = \sqrt[5]{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(51.03)^3 (\tan 81^\circ 43')^2}}$$
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3. A man started for a walk when the hands of his watch were coincident between three and four o'clock. When he finished, the hands were again coincident between five and six o'clock. What was the time when he started, and how long did he walk ? (20 marks)

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5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)

(ii) Using the same scale and axes draw the graph of  $3y = x + 6$ . (5 marks)

(iii) From your graphs, find :

(a) the values of x for which  $3x^2 - 4x - 12 = 0$  (5 marks)

(b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks).

Subject: Algebra  
Class : 4th Year

SHAMASH SECONDARY SCHOOL  
Final Examination, May, 1970.

Date : 28/5/1970.  
Time : 8:00-10:00 a.m.

Answer all questions:

1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)

(b)  $\left[ \frac{\sqrt{x+a}}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)

(ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
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evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)

(i) Solve the equations :

(a)  $y^2 - 3y + 2 = 0$  , (3 marks)

(b)  $(\log_8 x)^2 - 3 \log_8 x + 2 = 0$ . (7 marks)

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5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)

(ii) Using the same scale and axes draw the graph of  $3y = x + 6$ . (5 marks)

(iii) From your graphs, find :

(a) the values of x for which  $3x^2 - 4x - 12 = 0$  , (5 marks)

(b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks).

Subject: Algebra  
Class : 5th Year

SHAMASH SECONDARY SCHOOL  
Final Examination, May, 1970.

Date : 28/5/1970.  
Time : 8:00-10:00 a.m.

Answer all questions:

1. (i) Simplify: (a)  $\frac{7}{2(x+1)} - \frac{1}{6(x-1)} - \frac{10x-1}{3(x^2+x+1)}$  (6 marks)

(b)  $\left[ \frac{x+a}{\sqrt{x-a}} - \frac{\sqrt{x-a}}{\sqrt{x+a}} \right] \cdot \frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$  (6 marks)

(ii) Given that :  $1 + 2 + 3 + \dots + n = \frac{1}{2}n(n+1)$  ,  
and :  $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{1}{6}n(n+1)(2n+1)$  ,

evaluate the quotient :  $\frac{1^2 + 2^2 + 3^2 + \dots + 40^2}{1 + 2 + 3 + \dots + 40}$  (8 marks)

(i) Solve the equations :

(a)  $y^2 - 3y + 2 = 0$  , (3 marks)

(b)  $(\log x)^2 - 3 \log x + 2 = 0$ . (7 marks)

(ii) Compute by logarithms the value of N :

$$N = \sqrt[5]{\frac{(0.002003)^3 (\cos 33^\circ 20')^2}{(51.03)^3 (\tan 81^\circ 43')^2}}$$
 (10 marks)

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4. (i) The radius of the smallest of ten equally spaced concentric circles, made of wire, is 5cm and the radius of the largest is 9cm. Calculate, in meters, the total length of wire required to make the ten circles.  
{Take  $\pi$  as  $\frac{22}{7}$ } (10 marks)

(ii) The second term of a geometric progression is 15 and the product of the first and fourth terms is 75. Calculate the first and third terms. (10 marks)

5. (i) Using a scale of 1 inch to 1 unit on the x-axis and 1 inch to 2 units on the y-axis draw the graph of  $y = x^2 - x - 2$  for values of x from -2 to +3. (5 marks)

(ii) Using the same scale and axes draw the graph of  $3y = x + 6$ . (5 marks)

(iii) From your graphs, find :

(a) the values of x for which  $3x^2 - 4x - 12 = 0$  , (5 marks)

(b) the positive values of x for which  $\frac{1}{3}(x+6)$  is greater than  $x^2 - x - 2$ . (5 marks).



Subject: Algebra  
 Class: 4th year Secondary, Scientific Section

Date: 19/4/1970  
 Time: 8:00 - 9:30 a.m.

1.  $y = mx + c$ , find  $m$  and  $c$  if  $x = 5$  when  $y = 10$  and if an increase of (1) in  $x$  leads to an increase of (2) in the value of  $y$ .
- $\therefore 10 = 5m + c \dots \textcircled{1}$  also  $y + 3 = m(x + 1) + c$  or  $y = mx + m + c \dots \textcircled{2}$
- Subtracting  $\textcircled{1}$  from  $\textcircled{2}$  we obtain:  $m - 3 = 0$  or  $m = 3$ ; from  $\textcircled{1}$ :  $10 = 5 \times 3 + c$   
 or  $c = -5$   $\therefore m = 3$  and  $y = 3x - 5$  Ans. 1 (14 marks)
- when  $x = y$  then  $x = 3x - 5$  or  $2x = 5 \therefore x = \frac{5}{2}$  Ans. 2 (6 marks)

2 (i) Find the square root of:

(1)  $1 - 2^{2n+1} + 4^{2n} = (1 - 2^{2n})^2 + (2^{2n})^2 = (1 - 2^{2n})^2$   
 $\therefore \sqrt{1 - 2^{2n+1} + 4^{2n}} = \sqrt{(1 - 2^{2n})^2} = 1 - 2^{2n}$  Ans. 1 (6 marks)

(2)  $9^{2n} - 2(6^{2n}) + 4^{2n} = (3^{2n})^2 - 2(3^{2n})(2^{2n}) + (2^{2n})^2 = (3^{2n} - 2^{2n})^2$   
 $\therefore \sqrt{9^{2n} - 2(6^{2n}) + 4^{2n}} = \sqrt{(3^{2n} - 2^{2n})^2} = 3^{2n} - 2^{2n}$  Ans. 2 (7 marks)

(ii)  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}} = \frac{2\sqrt{10} \cdot 15\sqrt{21}}{3\sqrt{27} \cdot 4\sqrt{15}} \cdot \frac{7\sqrt{48}}{5\sqrt{14}} = \frac{2 \times 15 \times 7 \times \sqrt{10 \times 21 \times 48}}{3 \times 4 \times 5 \times \sqrt{27 \times 15 \times 14}} = \frac{14}{3}$  Ans. (12 marks)

3 (i) Find the value of:  $\frac{1}{3\sqrt{5}-6}$  given that:  $\sqrt{5} = 2.236$

$\frac{1}{3\sqrt{5}-6} = \frac{1}{3(\sqrt{5}-2)} = \frac{\sqrt{5}+2}{3(\sqrt{5}-2)(\sqrt{5}+2)} = \frac{2+\sqrt{5}}{3(5-4)} = \frac{2+2.236}{3} = \frac{4.236}{3} = 1.412$  Ans. (10 marks)

(ii) Solve simultaneously:

$$\begin{array}{l|l} 2^x = 8^{y+1} & \dots \textcircled{1} \\ 9^y = 3^{x-9} & \dots \textcircled{2} \end{array}$$

$\therefore 2^x = 2^{3(y+1)} \therefore x = 3y + 3 \dots \textcircled{3}$   
 $\therefore 3^{2y} = 3^{x-9} \therefore 2y = x - 9 \dots \textcircled{4}$

From  $\textcircled{3}$  and  $\textcircled{4}$ :  $3y + 3 = 2y + 9 \therefore y = 6 \therefore x = 3 \times 6 + 3 = 21$   
 $\therefore x = 21$   
 $y = 6$  Ans. (15 marks)

Solution to Algebra Questions Cont.

4. (i) Find the value of  $x$  from the following equation without using tables:

$$2^{2x+1} \cdot 3^{4x-1} = 216 \quad \therefore 2^{2x+1} \cdot 3^{4x-1} = 2^3 \cdot 3^3 \dots \dots \textcircled{1}$$

$$\therefore 2^{2x+1-3} \cdot 3^{4x-1-3} = 1 \quad \therefore 2^{2x-2} \cdot 3^{4x-4} = 1 \quad \therefore (2x-2) \log 2 + (4x-4) \log 3 = 0$$

$$\therefore 2x \log 2 - 2 \log 2 = 4x \log 3 - 4 \log 3 \quad \therefore 2x(4 \log 3 - 2 \log 2) = 4 \log 3 - 2 \log 2$$

$$\therefore x = \frac{4 \log 3 - 2 \log 2}{4 \log 3 - 2 \log 2} = 1 \quad \therefore x = 1 \text{ Ans.} \quad (15 \text{ marks})$$

alternatively: from  $\textcircled{1}$ :  $2^{2x+1} \cdot 3^{4x-1} = 2^3 \cdot 3^3 \quad \therefore 2x+1 = 3 \text{ or } 2x+1 = 3$   
 also  $4x-1 = 3 \text{ or } x = 1 \text{ Ans.}$

(ii) Compute by logarithm:  $x = \sqrt{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$

$\log 0.002001 = \bar{3}.3012$	$3 \log 0.002001 = \bar{6}.6024$	$3 \log 2.007 = 0.9075$
$\log \sin 15^\circ 12' = \bar{1}.4186$	$3 \log \sin 15^\circ 12' = \bar{3}.2558$	$2 \log \cos 11^\circ 20' = \bar{1}.9828$
$\log 2.007 = 0.3025$	$\log \text{Num} = \bar{8}.8582$	$\log \text{Den.} = 0.8903$
$\log \cos 11^\circ 20' = \bar{1}.9914$	$\log \text{Den} = 0.8903$	
	$7 \log x = \bar{9}.9679$	
	$\log x = \bar{2}.85256 = \bar{2}.8526$ Correct to 4 dec. pl.	
	$x = 7.122 \times 10^{-2}$ Ans.	
	or $x = 0.07122$	(15 marks)

SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1970.

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970.  
Time : 8:00-9:30 a.m.

Answer all questions :

1. If  $x$  and  $y$  are connected by the formula  $y = mx + c$ , find  $m$  and  $c$  if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of  $x$  leads to an increase of 3 in the value of  $y$ . Find also what value of  $x$  makes  $x$  and  $y$  equal. (20 marks).

2. (i) Find the square root of :

(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks).

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks).

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks).

- (ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$  .....(1)

$9^y = 3^{x-9}$  .....(2) (15 marks).

4. (i) Find the value of  $x$  from the following equation without using tables:

(2)  $\frac{2x+1}{(3)} \cdot \frac{4x-1}{(3)} = 216$  (15 marks).

- (ii) Compute by logarithms, arranging your work neatly :

$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.667)^3 (\cos 11^\circ 20')^2}}$  (15 marks).

Date : 19/4/1970  
Time : 8:00-9:30 a.m.

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970  
Time : 8:00-9:30 a.m.

Answer all questions :

1. If x and y are connected by the formula  $y = mx + c$ , find m and c if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of x leads to an increase of 3 in the value of y. Find also what value of x makes x and y equal. (20 marks)

2. (i) Find the square root of :

(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$

(ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$  ..... (1)

$9^y = 3^{x-9}$  ..... (2)

4. (1) Find the value of x from the following equation without using tables :

(2)  $\frac{2x+1}{(3)^{\frac{4x-1}{3}}} = 216$

(ii) Compute by logarithms, arranging your work neatly :

$$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$$
 (15 marks)

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970  
Time : 8:00-9:30 a.m.

Answer all questions :

1. If x and y are connected by the formula  $y = mx + c$ , find m and c if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of x leads to an increase of 3 in the value of y. Find also what value of x makes x and y equal. (20 marks)

2. (i) Find the square root of :

(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks)

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks)

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks)

(ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$  ..... (1)

$9^y = 3^{x-9}$  ..... (2) (15 marks)

4. (1) Find the value of x from the following equation without using tables :

(2)  $\frac{2x+1}{(3)^{\frac{4x-1}{3}}} = 216$  (15 marks)

(ii) Compute by logarithms, arranging your work neatly :

$$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$$
 (15 marks)

SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1970.

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970.  
Time : 8:00-9:50 a.m.

Answer all questions :

1. If  $x$  and  $y$  are connected by the formula  $y = mx + c$ , find  $m$  and  $c$  if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of  $x$  leads to an increase of 3 in the value of  $y$ . Find also what value of  $x$  makes  $x$  and  $y$  equal. (20 marks).

2. (i) Find the square root of :

(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks).

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks).

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks).

- (ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$ .....(1)

$9^y = 3^{x-9}$ .....(2) (15 marks).

4. (1) Find the value of  $x$  from the following equation without using tables:

$\frac{2x+1}{(2)} \cdot \frac{4x-1}{(3)} = 216$  (15 marks).

- (ii) Compute by logarithms, arranging your work neatly :

$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$  (15 marks).

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970.  
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Answer all questions :

1. If x and y are connected by the formula  $y = mx + c$ , find m and c if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of x leads to an increase of 3 in the value of y. Find also what value of x makes x and y equal. (20 marks).

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(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks).

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks).

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks).

(ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$ .....(1)

$9^y = 3^{x-9}$ .....(2) (15 marks).

4. (1) Find the value of x from the following equation without using tables:

$\frac{2x+1}{(2)} \cdot \frac{4x-1}{(3)} = 216$  (15 marks).

(ii) Compute by logarithms, arranging your work neatly :

$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$  (15 marks).

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970  
Time : 8:00-9:30 a.m.

Answer all questions :

1. If x and y are connected by the formula  $y = mx + c$ , find m and c if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of x leads to an increase of 3 in the value of y. Find also what value of x makes x and y equal. (20 marks)

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(2)  $9^n - 2(6^n) + 4^n$

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks)

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks)

(ii) Without using tables, solve the two simultaneous equations :

(1)  $2^x = 8^{y+1}$

(2)  $9^y = 3^{x-9}$

4. (i) Find the value of x from the following equation without using tables:  
 $\frac{2x+1}{(2)} \cdot \frac{4x-1}{(3)} = 216$  (15 marks)

(ii) Compute by logarithms, arranging your work neatly :

$$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$$

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970.  
Time : 8:00-9:30 a.m.

Answer all questions :

1. If x and y are connected by the formula  $y = mx + c$ , find m and c if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of x leads to an increase of 3 in the value of y. Find also what value of x makes x and y equal. (20 marks)

2. (i) Find the square root of :

(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks)

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks)

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks)

(ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$  ..... (1)

$9^y = 3^{x-9}$  ..... (2) (15 marks)

4. (i) Find the value of x from the following equation without using tables:

$\frac{2x+1}{(2)} \cdot \frac{4x-1}{(3)} = 216$  (15 marks)

(ii) Compute by logarithms, arranging your work neatly :

$$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$$

SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1970.

Subject : Algebra  
Class : 4th year Secondary, scientific Section

Date : 19/4/1970.  
Time : 8:00-9:50 a.m.

Answer all questions :

1. If  $x$  and  $y$  are connected by the formula  $y = mx + c$ , find  $m$  and  $c$  if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of  $x$  leads to an increase of 3 in the value of  $y$ . Find also what value of  $x$  makes  $x$  and  $y$  equal. (20 marks).

2. (i) Find the square root of :

(1)  $1 - (2^{2n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks).

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks).

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks).

- (ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$ .....(1)

$9^y = 3^{x-9}$ .....(2) (15 marks).

4. (1) Find the value of  $x$  from the following equation without using tables:

(2)  $\frac{2x+1}{(3)^{\cdot}} \cdot \frac{4x-1}{(3)^{\cdot}} = 216$  (15 marks).

- (ii) Compute by logarithms, arranging your work neatly :

$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$  (15 marks).



SHAMASH SECONDARY SCHOOL

4th Quarter Examination, April, 1970.

Subject : Algebra

Class : 4th year Secondary, scientific Section

Date : 19/4/1970.

Time : 8:00-9:30 a.m.

Answer all questions :

1. If  $x$  and  $y$  are connected by the formula  $y = mx + c$ , find  $m$  and  $c$  if  $x = 5$  when  $y = 10$  and if an increase of 1 in the value of  $x$  leads to an increase of 3 in the value of  $y$ . Find also what value of  $x$  makes  $x$  and  $y$  equal. (20 marks).

2. (i) Find the square root of :

(1)  $1 - (2^{n+1}) + (4^{2n})$

(2)  $9^n - 2(6^n) + 4^n$  (13 marks).

(ii) Simplify :  $\frac{2\sqrt{10}}{3\sqrt{27}} \cdot \frac{15\sqrt{21}}{4\sqrt{15}} \div \frac{5\sqrt{14}}{7\sqrt{48}}$  (12 marks).

3. (i) Find the value of :  $\frac{1}{3\sqrt{5}-6}$ , given that  $\sqrt{5} = 2.236$  (10 marks).

- (ii) Without using tables, solve the two simultaneous equations :

$2^x = 8^{y+1}$  .....(1)

$9^y = 3^{x-9}$  .....(2) (15 marks).

4. (i) Find the value of  $x$  from the following equation without using tables:

(2)  $\frac{2x+1}{(3)^2} \cdot \frac{4x-1}{(3)^3} = 216$  (15 marks).

- (ii) Compute by logarithms, arranging your work neatly :

$N = \sqrt[7]{\frac{(0.002001)^2 (\sin 15^\circ 12')^3}{(2.007)^3 (\cos 11^\circ 20')^2}}$  (15 marks).

Subject: Algebra  
 Date: \_\_\_\_\_

1. Find the roots of the equation  $x^2 - 5x + 6 = 0$  by factoring.

2. Find the roots of the equation  $x^2 - 7x + 12 = 0$  by factoring.

(1)  $x^2 - 5x + 6 = 0$

(2)  $x^2 - 7x + 12 = 0$

(3)  $x^2 - 10x + 25 = 0$

4. Find the value of  $x$  from the following equation without using tables:

(1)  $x^2 - 4x + 4 = 0$

(2)  $x^2 - 6x + 9 = 0$

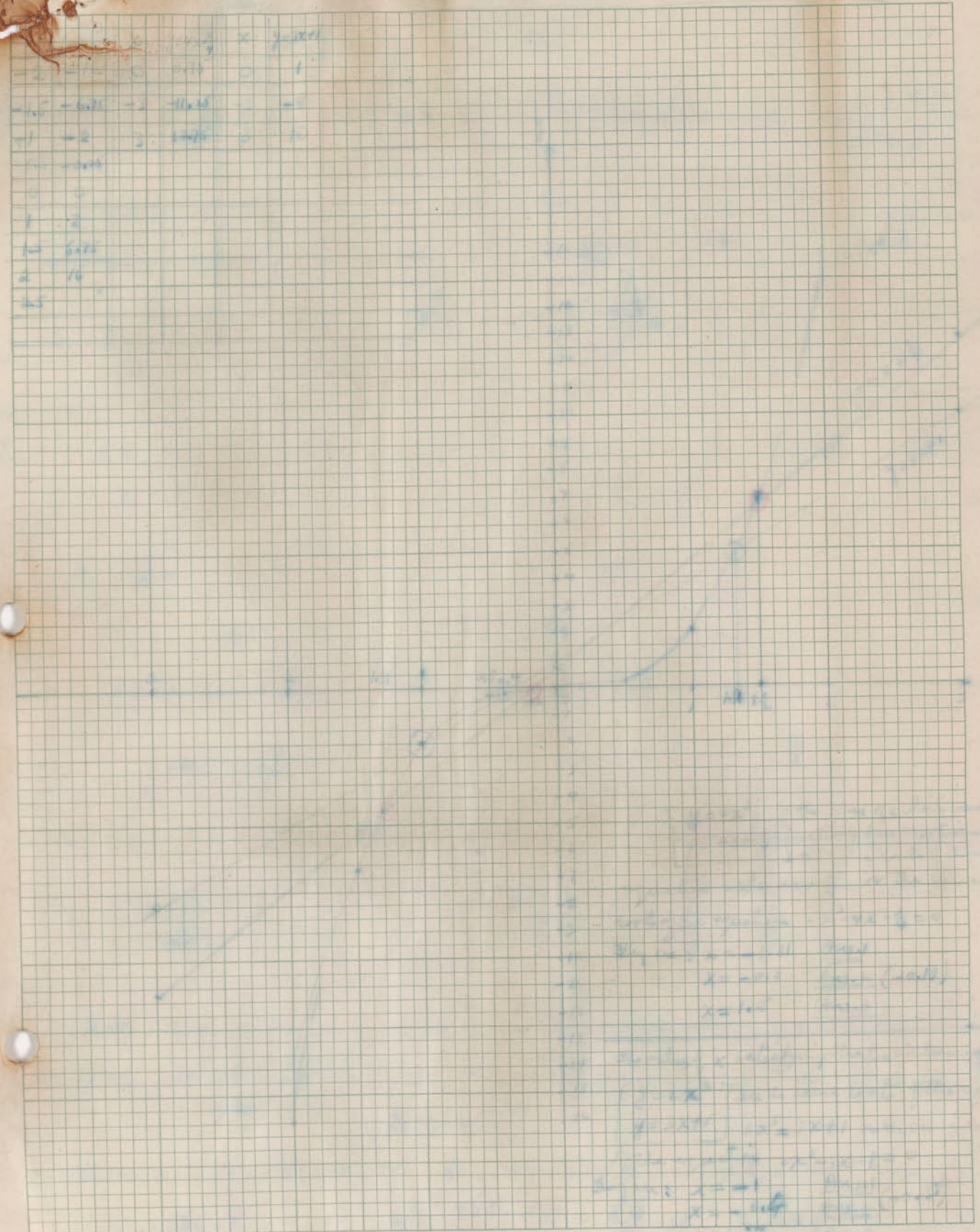
5. Find the value of  $x$  from the following equation without using tables:

(1)  $x^2 - 8x + 16 = 0$

(2)  $x^2 - 10x + 25 = 0$

(3)  $x^2 - 12x + 36 = 0$

Handwritten notes at the top of the right page.



Solution to 3<sup>rd</sup> Quarter Examination in Algebra  
4<sup>th</sup> year, 15/2/1970.

1. If  $\left[\frac{x}{a} + \frac{y}{b} = 1\right]$  (1) and  $[bx - ay = 3ab]$  (2) find the value of  $\frac{x^2 + 4y^2}{a^2 + b^2}$

from (1):  $bx + ay = ab$   $\therefore 2bx = 4ab \therefore x = 2a$

from (2):  $bx - ay = 3ab$   $\therefore ay - ab = bx - ab$   $\therefore ay = 3ab \therefore y = 3b$

$\therefore \frac{x^2 + 4y^2}{a^2 + b^2} = \frac{4a^2 + 4(9b^2)}{a^2 + b^2} = \frac{4(a^2 + 9b^2)}{a^2 + b^2} = 4$  Ans.

2.  $(x-5)(y+6) = 18$  --- (1)  $\therefore xy + 6x - 5y - 30 = 18$  (1.a)  
 $x + 3y = 5$  --- (2)  $\therefore x = 5 - 3y$  (2.a)

$\therefore (2-3y)y + 6(2-3y) - 5y - 30 = 18$  or

$2y - 3y^2 + 12 - 18y - 5y - 30 = 18$  or

$3y^2 + 21y + 36 = 0$  or  $y^2 + 7y + 12 = 0$

$\therefore (y+4)(y+3) = 0 \therefore y = -4$  and  $y = -3$

$\therefore x = 2 - 3(-4) = 14$  and  $x = 2 - 3(-3) = 11$

$\therefore \left. \begin{matrix} x = 14 \\ y = -4 \end{matrix} \right\} \text{Ans. 1}$   $\left. \begin{matrix} x = 11 \\ y = -3 \end{matrix} \right\} \text{Ans. 2}$

Speed of boat in still water = 8 km/hr. Let the speed of current be  $x$  mi/hr. Time =  $1\frac{1}{3}$  hr.  
 $\therefore$  speed of boat with the current =  $(8+x)$  mi/hr.  $\therefore \frac{5}{8-x} + \frac{5}{8+x} = 1\frac{1}{3}$  or  $\frac{5}{8-x} + \frac{5}{8+x} = \frac{4}{3}$   
" " against " " =  $(8-x)$  mi/hr.

$\therefore 15(8+x) + 15(8-x) = 4(8-x)(8+x)$  or  $120 + 15x + 120 - 15x = 4(64 - x^2)$  or  
 $240 = 256 - 4x^2$  or  $x^2 = \frac{256 - 240}{4} = \frac{16}{4} = 4 \therefore x = 2$  miles/hr. Ans. 1

time taken to travel from A to B =  $\frac{5}{8-2} = \frac{5}{6} = \frac{5}{6}$  hrs or 50 minutes. Ans. 2

4. (i)  $2x^3 - 4x - \frac{3}{4} = 0$  --- (1) The roots of this equation are the same as the roots of  $2x^3 = 4x + \frac{3}{4}$   
 $2x^3 - 3x - 1 = 0$  --- (2) " " of eqn (2) " " " "  $\therefore 2x^3 = 3x + 1$

Let  $y = 2x^3$  } Plot  
and  $y = 4x + \frac{3}{4}$  } Plot

$y = 2x^3$  } Plot  
 $y = 3x + 1$  } Plot

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, February, 1970.

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks).

2. Solve the equations :

$$(x - 5)(y + 6) = 18 \dots\dots\dots(1)$$

$$x + 3y = 2 \dots\dots\dots(2)$$

(15 marks).

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks).

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks).

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0 \dots\dots\dots(1)$$

$$2x^3 - 3x - 1 = 0 \dots\dots\dots(2)$$

(30 marks).

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{\frac{2x^2}{a} + \frac{2y^2}{b}}$$

(15 marks)

2. Solve the equations :

$$(x - 2)(y + 6) = 18$$

$$x + 3y = 2$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B.

(20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis.

(20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0$$

$$2x^3 - 3x - 1 = 0$$

(30 marks)

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{\frac{2x^2}{a} + \frac{2y^2}{b}}$$

(15 marks).

2. Solve the equations :

$$(x - 5)(y + 6) = 18$$

$$x + 3y = 2$$

(15 marks).

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B.

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(20 marks).

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0$$

$$2x^3 - 3x - 1 = 0$$

(30 marks).

Date : 15/2/1970  
Time : 8:30-10. a.m.

Subject : Algebra  
Class : 4th year secondary

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks)

2. Solve the equations :

$$(x - 5)(y + 6) = 18 \dots\dots\dots(1)$$

$$x + 3y = 2 \dots\dots\dots(2)$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B.

(20 marks)

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(20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0 \dots\dots\dots(1)$$

$$2x^3 - 3x - 1 = 0 \dots\dots\dots(2)$$

(30 marks)

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks)

2. Solve the equations :

$$(x - 5)(y + 6) = 18 \dots\dots\dots(1)$$

$$x + 3y = 2 \dots\dots\dots(2)$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B.

(20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis.

(20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0 \dots\dots\dots(1)$$

$$2x^3 - 3x - 1 = 0 \dots\dots\dots(2)$$

(30 marks)

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2}{a^2} + \frac{4y^2}{b^2}$$

(15 marks)

2. Solve the equations :

$$(x - 2)(y + 6) = 18$$

$$x + 3y = 2$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current flows at a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0$$

$$2x^3 - 3x - 1 = 0$$

(30 marks)

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2}{a^2} + \frac{4y^2}{b^2}$$

(15 marks)

2. Solve the equations :

$$(x - 5)(y + 6) = 18$$

$$x + 3y = 2$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0$$

$$2x^3 - 3x - 1 = 0$$

(30 marks)

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, February, 1970.

Date : 15/2/1970  
Time : 8:30-10. a.m.

Subject : Algebra  
Class : 4th year secondary

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks)

2. Solve the equations :

$$(x - 5)(y + 6) = 18 \dots\dots\dots(1)$$

$$x + 3y = 2 \dots\dots\dots(2)$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0 \dots\dots\dots(1)$$

$$2x^3 - 3x - 1 = 0 \dots\dots\dots(2)$$

(30 marks)

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, February, 1970.

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks).

2. Solve the equations :

$$(x - 5)(y + 6) = 18 \dots\dots\dots(1)$$

$$x + 3y = 2 \dots\dots\dots(2)$$

(15 marks).

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0 \dots\dots\dots(1)$$

$$2x^3 - 3x - 1 = 0 \dots\dots\dots(2)$$

(30 marks).



SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, February, 1970.

Date : 15/2/1970  
Time : 8:30-10. a.m.

Subject : Algebra  
Class : 4th year secondary

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks)

Solve the equations :

$$(x - 2)(y + 6) = 18$$

$$x + 3y = 2$$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0$$

$$2x^3 - 3x - 1 = 0$$

(30 marks)

SHAMASH SECONDARY SCHOOL

3rd Quarter Examination, February, 1970.

Subject : Algebra  
Class : 4th year secondary

Date : 15/2/1970.  
Time : 8:30-10. a.m.

Answer all four questions :

1. If  $\frac{x}{a} + \frac{y}{b} = 1$  and  $bx - ay = 3ab$  find the value of

$$\frac{x^2 + 4y^2}{a^2 + b^2}$$

(15 marks).

2. Solve the equations :

$$(x - 5)(y + 6) = 18 \dots\dots\dots(1)$$

$$x + 3y = 2 \dots\dots\dots(2)$$

(15 marks).

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current has a steady speed it is found that the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (20 marks)

4. (i) Plot the curve  $y = 2x^3$  at half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-tenths inches as one unit on the y-axis. (20 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations :

$$2x^3 - 4x - \frac{3}{4} = 0 \dots\dots\dots(1)$$

$$2x^3 - 3x - 1 = 0 \dots\dots\dots(2)$$

(30 marks).

School Name, Date, Class

1. (i)  $\frac{x}{1 + \frac{x}{-x+1} + \frac{x}{1+x}}$   $\div$   $\frac{1+x+x^2}{(1+x^2)+(2x+2x^2+2x^3)}$

$$= \frac{x}{1 + \frac{x}{-x+1} + \frac{x}{1+x}}$$

$$= \frac{x}{1 + \frac{x}{-x+1} + \frac{x}{1+x}}$$

$$= \frac{x}{1 + \frac{x}{-x+1} + \frac{x}{1+x}}$$

$$x(1+x-x^2) = x(1+x-x^2)$$

$$\frac{x+2}{x} + \frac{x-7}{x-2} - \frac{x-6}{x+1} = \frac{x-6}{x-4}$$

$$1 + \frac{2}{x} + \frac{x-7}{x-2} - \frac{x-6}{x+1} = \frac{x-6}{x-4}$$

$$1 + \frac{2}{x} + \frac{x-7}{x-2} - \frac{x-6}{x+1} = 1 - \frac{2}{x-4}$$

$$\frac{2}{x} - \frac{2}{x-2} - \frac{2}{x+1} = -\frac{2}{x-4} \Rightarrow \frac{1}{x} - \frac{1}{x-2} - \frac{1}{x+1} = -\frac{1}{x-4}$$

$$\frac{x-5-x}{x(x-2)} = \frac{x-4-(x+1)}{(x-2)(x+1)} \Rightarrow \frac{-5}{x(x-2)} = \frac{-5}{(x-2)(x+1)}$$

$$\frac{-5}{x(x-2)} = \frac{-5}{(x-2)(x+1)} \Rightarrow (x+1)(x-2) = x(x-2)$$

$$\Rightarrow x^2 - 2x - 4 = x^2 - 2x \Rightarrow -4 = 0 \Rightarrow \text{No solution}$$

BHARUCH SECONDARY SCHOOL

3rd Quarter Examination, February, 1960.

Date: 15/2/60, Time: 8:30-10 a.m., Subject: Algebra, Class: 5th year secondary

Answer all four questions:  
1. If  $\frac{x}{a} = 1$  and  $bx - cy = \text{find the value of}$

$$\frac{\frac{x}{a} + \frac{y}{b}}{\frac{x}{a} - \frac{y}{b}}$$

(15 marks)

2. Solve the equations:  
(1)  $x - 2(y+6) = 18$

(2)  $x + 3y = 5$

(15 marks)

3. A motor boat has a speed of 8 kilometers per hour in still water. In a river in which the current flows at a steady speed of 4 km/hr, the motor boat takes 1 hour 20 minutes to travel from a point A to a point B, 5 kilometers upstream from A, and immediately back again to A. Calculate the speed of the current and the time taken to travel from A to B. (50 marks)

4. (i) Plot the curve  $y = 2x^2$  of half-unit intervals from  $x = -2$  to  $x = 2$  choosing one inch as one unit on the x-axis and two-fifteenths inches as one unit on the y-axis. (50 marks)

(ii) By drawing two other straight lines on the same diagram, find the roots of each of the two following equations:

(1)  $5x^2 - 4x - 1 = 0$

(2)  $5x^2 - 3x - 1 = 0$

(50 marks)

Handwritten notes at the top of the left page, including the fraction  $\frac{2}{x+1}$ .

Handwritten algebraic work on the left page, including the fraction  $\frac{x}{x+1}$ .

Handwritten algebraic work on the left page, including the fraction  $\frac{2}{x}$ .

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Handwritten algebraic work on the left page, including the fraction  $\frac{2}{x}$ .

2 (i) (a)  $x^4 - 15x^2y + 9y^2 = (x^2 - 3y)(x^2 + 3y) = (x - \sqrt{3}y)(x + \sqrt{3}y)(x - \sqrt{3}y)(x + \sqrt{3}y)$  Ans.

(b)  $\frac{x}{x^2} - 2xy^2 = \left(\frac{x}{x}\right)^2 - (2y)^2 = \left(\frac{x}{x} - 2y\right)\left(\frac{x}{x} + 2y\right)$  Ans.

(c)  $x + 2 + \frac{1}{x} = \left(x + \frac{1}{x}\right) + 2$  Ans. (2 marks)

(ii)  $ax^2 + bx + c = a\left(x + \frac{b}{2a}\right)^2 - \left(\frac{b^2 - 4ac}{4a}\right) = a\left[x + \frac{b}{2a} + \frac{\sqrt{b^2 - 4ac}}{2a}\right]\left[x + \frac{b}{2a} - \frac{\sqrt{b^2 - 4ac}}{2a}\right]$  f.o.d. (2 marks)

3 (i) triangular no. of sides  $n = \frac{1}{2}n(n+1)$   
 $10 = \frac{1}{2}n(n+1) \Rightarrow 20 = n^2 + n \Rightarrow n^2 + n - 20 = 0 \Rightarrow (n+5)(n-4) = 0 \Rightarrow n = 4$  (2 marks)

(ii) triangular no. of sides  $n = 105 \Rightarrow \frac{1}{2}n(n+1) = 105 \Rightarrow n^2 + n - 210 = 0$   
 $n^2 + n - 210 = 0 \Rightarrow (n+15)(n-14) = 0 \Rightarrow n = 14$  (2 marks)

4. Let  $x$  gallons be drawn off from vessel A.  
a.  $(1-x)$  is still in vessel A.  
b.  $\frac{x}{2}$  gallons were drawn off from vessel A.  
c.  $\frac{1-x}{2}$  gallons were drawn off from vessel A.  
d.  $x + \frac{1-x}{2} = \frac{2x + 1 - x}{2} = \frac{x + 1}{2}$  gallons.  
e.  $\frac{x + 1}{2}$  gallons were drawn off from vessel A.  
Ans. (2 marks)

Subject: Algebra  
Class : 4th Year, Secondary

Date : Wed., 31/12/1969.  
Time : 8:30-10 a.m.

Solve all questions :

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{x(1+x-x^2)}} + \frac{1+x+x^2}{(1+x+x^2) + (2x+2x^2+2x^3)}$  (13 marks).

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution :

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} \equiv \frac{x-6}{x-4} \quad (12 \text{ marks}).$$

$x=2$

2. (i) Resolve each of the following expressions into two factors :

(a)  $x^4 - 15x^2y^2 + 9y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks).

(ii) Show that any expression of the form  $ax^2 + bx + c$  can be factored into :

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(13 marks).

3. (i) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks).

(ii) Given that 105 is a triangular number, find its order.

(13 marks).

4. Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water ?

$\frac{3}{5}$  gall. from A +  $\frac{2}{5}$  gall. from B

(25 marks).

Subject: Algebra  
Class : 4th Year, Secondary

Date : Wed., 31/12/1969.  
Time : 8:30-10 a.m.

Solve all questions :

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1-x + \frac{x}{1+x}}}$  +  $\frac{1+x+x^2}{(1+x+x^2) + (2x+2x^2+2x^3)}$  (13 marks).

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution :

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} \equiv \frac{x-6}{x-4} \quad (12 \text{ marks}).$$

2. (i) Resolve each of the following expressions into two factors :

(a)  $x^4 - 15x^2y^2 + 2y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks).

(ii) Show that any expression of the form  $ax^2 + bx + c$  can be factored into :

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(13 marks).

3. (i) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks).

(ii) Given that 105 is a triangular number, find its order.

(13 marks).

4. Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water ?

(25 marks).

Subject: Algebra  
Class : 4th Year, Secondary

Date : Wed., 31/12/1969.  
Time : 8:30-10 a.m.

Solve all questions :

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1-x + \frac{x}{1+x}}}$   $\div$   $\frac{1+x+x^2}{(1+x+x^2) + (2x+2x^2+2x^3)}$  (13 marks).

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution :

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} \equiv \frac{x-6}{x-4} \quad (12 \text{ marks}).$$

2. (i) Resolve each of the following expressions into two factors :

(a)  $x^4 - 15x^2y^2 + 2y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks).

(ii) Show that any expression of the form  $ax^2 + bx + c$  can be factored into :

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(13 marks).

3. (i) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks).

(ii) Given that 105 is a triangular number, find its order.

(13 marks).

4. Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water ?

(25 marks).

Date: Wed., 31/12/1969.  
Time: 8:30-10 a.m.

Subject: Algebra  
Class: 4th Year, Secondary

Solve all questions:

(1) Simplify:  $\frac{x^2 + x + 1}{(x^2 + 2x + 1) + (x^2 + x + 1)}$

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution:

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} = \frac{x-6}{x-4}$$

(ii) Resolve each of the following expressions into two factors:

(a)  $x^4 - 15x^2y^2 + 9y^4$       (b)  $\frac{8}{x^3} - 27y^6$       (c)  $x^2 + 2 + \frac{1}{x^2}$

(ii) Show that any expression of the form  $ax^2 + bx + c$  can be factored into:

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(i) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(ii) Given that 105 is a triangular number, find its order.

Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water?

Subject: Algebra  
Class: 4th Year, Secondary

Date: Wed., 31/12/1969.  
Time: 8:30-10 a.m.

Solve all questions:

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1-x + \frac{x}{1+x}}}$   $\div$   $\frac{1+x+x^2}{(1+x+x^2) + (2x+2x^2+2x^3)}$  (13 marks).

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution:

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} = \frac{x-6}{x-4}$$
 (12 marks).

2. (i) Resolve each of the following expressions into two factors:

(a)  $x^4 - 15x^2y^2 + 9y^4$       (b)  $\frac{8}{x^3} - 27y^6$       (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks).

(ii) Show that any expression of the form  $ax^2 + bx + c$  can be factored into:

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(13 marks).

3. (i) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks).

(ii) Given that 105 is a triangular number, find its order.

(13 marks).

4. Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water?

(25 marks).

Date: Wed., 31/12/1969.  
Time: 8:30-10 a.m.

Subject: Algebra  
Class: 4th Year, Secondary

Solve all questions:

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}}$

(13 marks)

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution:

$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} = \frac{x-6}{x-4}$

(12 marks)

(iii) Resolve each of the following expressions into two factors:

(a)  $x^4 - 15x^2y^2 + 9y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks)

(iv) Show that any expression of the form  $ax^2 + bx + c$  can be factored into:

$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$

(13 marks)

(v) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks)

(vi) Given that 105 is a triangular number, find its order.

(13 marks)

Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water?

(25 marks)

Subject: Algebra  
Class: 4th Year, Secondary

Date: Wed., 31/12/1969.  
Time: 8:30-10 a.m.

Solve all questions:

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}}$

(13 marks)

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution:

$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} = \frac{x-6}{x-4}$

(12 marks)

2. (i) Resolve each of the following expressions into two factors:

(a)  $x^4 - 15x^2y^2 + 9y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks)

(ii) Show that any expression of the form  $ax^2 + bx + c$  can be factored into:

$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$

(13 marks)

3. (i) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks)

(ii) Given that 105 is a triangular number, find its order.

(13 marks)

4. Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water?

(25 marks)



Date: Wed., 31/12/1969.  
Time: 8:30-10 a.m.

Subject: Algebra  
Class: 4th Year, Secondary

Solve all questions:

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}}$

(13 marks)

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution:

(12 marks)

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} \equiv \frac{x-6}{x-4}$$

(iii) Resolve each of the following expressions into two factors:

(a)  $x^4 - 15x^2y^2 + 2y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks)

(iv) Show that any expression of the form  $ax^2 + bx + c$  can be factored into:

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(13 marks)

(v) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks)

(vi) Given that 105 is a triangular number, find its order.

(13 marks)

Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water?

(25 marks)

Subject: Algebra  
Class: 4th Year, Secondary

Date: Wed., 31/12/1969.  
Time: 8:30-10 a.m.

Solve all questions:

1. (i) Simplify:  $\frac{x}{1 + \frac{x}{1 - x + \frac{x}{1 + x}}}$   $\frac{1 + x + x^2}{(1 + x + x^2) + (2x + 2x^2 + 2x^3)}$

(13 marks)

(ii) Solve the following equation, splitting each fraction where possible, to use a short-cut to the solution:

$$\frac{x+2}{x} + \frac{x-7}{x-5} - \frac{x+3}{x+1} \equiv \frac{x-6}{x-4}$$

(12 marks)

(iii) Resolve each of the following expressions into two factors:

(a)  $x^4 - 15x^2y^2 + 2y^4$  (b)  $\frac{8}{x^3} - 27y^6$  (c)  $x^2 + 2 + \frac{1}{x^2}$

(12 marks)

(iv) Show that any expression of the form  $ax^2 + bx + c$  can be factored into:

$$a \left( x + \frac{b + \sqrt{b^2 - 4ac}}{2a} \right) \left( x + \frac{b - \sqrt{b^2 - 4ac}}{2a} \right)$$

(13 marks)

(v) If  $n$  is any positive whole number, then  $\frac{1}{2}n(n+1)$  is called the triangular number of order  $n$ . Find the triangular number of order 10.

(12 marks)

(vi) Given that 105 is a triangular number, find its order.

(13 marks)

Two vessels A and B contain mixtures of wine and water. In A there is twice as much water as wine. In B there are three times as much wine as water. How much must be drawn off from each vessel to fill a third vessel which holds one gallon, in order that its contents may be half wine and half water?

(25 marks)

Subject: Algebra  
 Class : 4th Year, Secondary

Date: 16/11/1969  
 Time: 12:00 - 1:30 p.m.

1. Give the English equivalent to the following :-

- ١- مستقيمتان متلاقية في نقطة واحدة .
  - ٢- الأجزاء المعصورة من مستقيم قاطع لعدد من المستقيمت المتوازية .
  - ٣- مركز ثقل المثلث يقسم كل خط متوسط فيه بنسبة ثلثين من جهة الرأس وثلث من جهة القاعدة
  - ٤- زاوية الرأس مثلث متساوي الساقين تساوي حاصل طرح مجموع زاويتي القاعدة من ١٨٠ درجة .
  - ٥- اذا ساورت الضلعان والزاوية المقابلة لهما من مثلث ضلعين والزاوية المقابلة لهما من مثلث آخر على التناظر ، فمن الممكن ان يتطابق المثلثان أو لا يتطابقان وتسمى هذه الحالة بالحالة المهمة .
- ( 25 marks )

2. In the expression  $6x^3 + Ax^2 - 14x + B$ , A and B are constants and the expression is divisible by  $(2x + 1)(x - 3)$ . Find the values of A and B and find the third factor.

(25 marks)

3. (i) Solve the equation  $3x^3 + 8x^2 = x + 10$  ( 12 marks )
- (ii) Resolve into 3 factors:  $20x^3 - 3x^2 - 14x - 3$  ( 13 marks )

4. (i) Given that  $\frac{x+1}{2y+1} = \frac{4x+5}{3y+4}$  find:

- (a) The value of x in terms of y, also the value of x when y = 1
- (b) The value of y in terms of x, also the value of y when x = 1

( 10 marks )

(ii) Cement can be bought either in bags each containing (a) lbs and costing x shillings, or at a cheaper rate in larger bags each containing (b) lbs and costing y shillings. Find an expression for the percentage saving made by using the larger bags instead of the smaller ones, when a concrete floor requiring ( 100 ab ) lbs of cement is to be made.

( 15 marks )

Subject: Algebra  
Date: 10/17/33  
Time: 12:30 - 1:30 p.m.

1. Give the factors equivalent to the following:

(a)  $x^2 - 16$   
(b)  $x^2 - 9$   
(c)  $x^2 - 25$   
(d)  $x^2 - 49$   
(e)  $x^2 - 64$

2. Factor the expression  $x^2 + 5x + 6$  and find the third factor.

(15 marks)  
(15 marks)  
(15 marks)

3. Given that  $x + y = 7$  and  $x - y = 1$   
(a) The value of  $x$  is  $\dots$   
(b) The value of  $y$  is  $\dots$

4. (1) Given that the area of a rectangle is 48 sq. units and the length is 8 units, find the width.  
(2) Given that the area of a square is 100 sq. units, find the side length.

1. Factor the expression  $x^2 - 16$

2. Factor the expression  $x^2 + 5x + 6$

3. Given that  $x + y = 7$  and  $x - y = 1$   
(a)  $x = \dots$   
(b)  $y = \dots$

4. (1) Area of rectangle = 48, length = 8, width =  $\dots$   
(2) Area of square = 100, side length =  $\dots$

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*[Faint, illegible handwriting on the right page, possibly bleed-through from the reverse side.]*

Subject: Algebra

Date: 16/11/1969

Class : 4th Year, Secondary

Time: 12:00 - 1:30 p.m.

1. Give the English equivalent to the following :-

- ١- مستقيمتان متلاقية في نقطة واحدة .
- ٢- الأجزاء المحصورة من مستقيم قاطع لعدد من المستقيمت المتوازية .
- ٣- مركز ثقل المثلث يقسم كل خط متوسط فيه بنسبة ثلثين من جهة الرأس وثلث من جهة القاعدة
- ٤- زاوية الرأس مثلث متساوي الساقين تساوي حاصل طرح مجموع زاويتي القاعدة من ١٨٠ درجة .
- ٥- إذا ساوى ضلعان والزاوية المقابلة لهما من مثلث ضلعين والزاوية المقابلة لهما من مثلث آخر على التناظر ، فمن الممكن ان يتطابق المثلثان أو لا يتطابقان وتسمى هذه الحالة بالحالة المبهمة .

( 25 marks )

2. In the expression  $6x^3 + Ax^2 - 14x + B$ , A and B are constants and the expression is divisible by  $(2x + 1)(x - 3)$ . Find the values of A and B and find the third factor.

( 25 marks )

3. (i) Solve the equation  $3x^3 + 8x^2 = x + 10$  ( 12 marks )

(ii) Resolve into 3 factors:  $20x^3 - 3x^2 - 14x - 3$  ( 13 marks )

4. (i) Given that  $\frac{x+1}{2y+1} = \frac{4x+5}{3y+4}$  : find:

(a) The value of x in terms of y, also the value of x when y = 1

(b) The value of y in terms of x, also the value of y when x = 1

( 10 marks )

(ii) Cement can be bought either in bags each containing (a)lbs and costing x shillings, or at a cheaper rate in larger bags each containing (b)lbs and costing y shillings. Find an expression for the percentage saving made by using the larger bags instead of the smaller ones, when a concrete floor requiring ( 100 ab ) lbs of cement is to be made.

( 15 marks )

Date: 12/17/69

Time: 12:00 - 1:30 p.m.

Subject: Algebra

Class: 7th Year, Secondary

To give the English equivalent to the following:

1.  $x^2 - 4x + 4 = 0$  (10 marks)

2.  $x^2 + 6x + 9 = 0$  (10 marks)

3.  $x^2 - 9 = 0$  (10 marks)

4.  $x^2 + 10x + 25 = 0$  (10 marks)

5.  $x^2 - 16 = 0$  (10 marks)

6.  $x^2 + 8x + 16 = 0$  (10 marks)

7.  $x^2 - 25 = 0$  (10 marks)

8.  $x^2 + 12x + 36 = 0$  (10 marks)

9.  $x^2 - 36 = 0$  (10 marks)

10.  $x^2 + 14x + 49 = 0$  (10 marks)

(20 marks)

11. In the expression  $ax^2 + bx + c$ , find the constants and the expression is identical to  $2x^2 + 5x + 3$  find the values of  $a$  and  $b$  and find the third constant. (25 marks)

(25 marks)

12. (a) Solve the equation  $x^2 - 5x + 6 = 0$  (10 marks)

(b) Solve the equation  $x^2 + 7x + 12 = 0$  (10 marks)

(20 marks)

13. (a) Given that  $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$ , find  $z$  in terms of  $x$  and  $y$ . (10 marks)

(10 marks)

(b) The value of  $x$  is 2, find the value of  $y$  when  $xy = 10$ . (10 marks)

(10 marks)

14. (a) Cement can be bought either in bags containing 50 lbs and weighs 100 lbs, or in a bag of 200 lbs. In a large bag each containing 100 lbs and costing 7 dollars. Find an expression for the amount of cement bought using the first bag method of the smaller bag when a concrete block measuring 100 cm by 100 cm is to be made. (10 marks)

(10 marks)