

(tell gille the left of all and all and and AB = 200 Cm 34 = 200x 0.329 = 165.2 gd. T= 165. 8 x tam 22 · 165.8 × 0.404 : 66.9832 yd. 200 92 AC = 200 2 34= 200× 0.5592 = 111.84 5 ten 0 = 66.3832 = 0.5385

ie 30 48

SHAMASH SECDNARY SCHOOL FINAL EXAMINATION - MAY 1970

Subject : Mathematics Date : 27/5/1970 Class : 4th year Secondary (scientific section) Time : 2 hours

Q1- A chord AB of a circle is produced to T. From T a line TC is drawn to touch the circle at C. If BT = 9 cm. and TC = 12 cm. Find the length of and the ratio of the areas of the triangles BTC and ATC and then prove BC^2 : $AC^2 = BT$: AT.

Q2- Two ships leave the same port at the same time and steam at 10 and 16 ".p.h. respectively in the direction N. 55 W. and S. 75 W. Find their distance apart after 2 hours and the bearing of the first ship to the second .

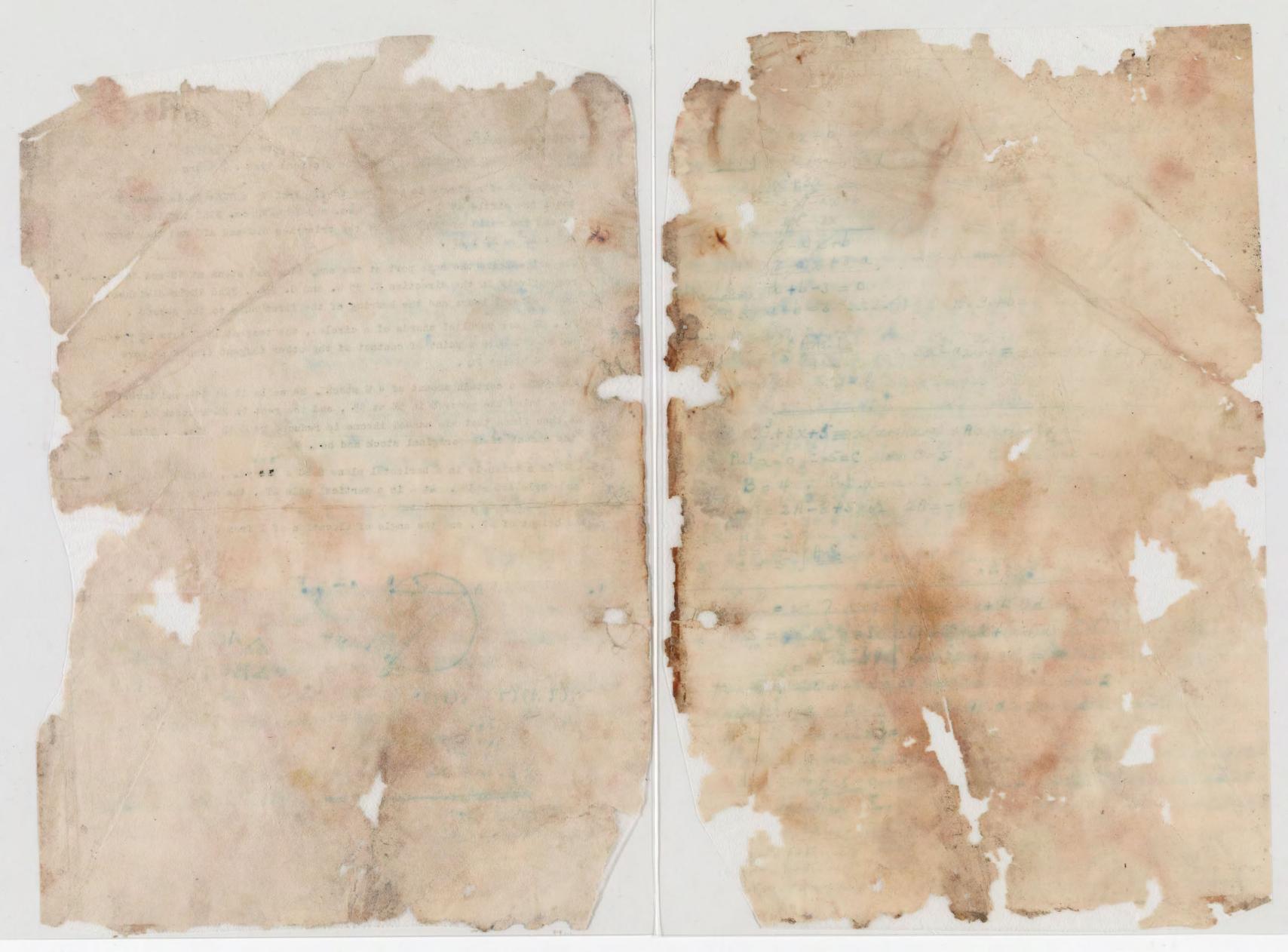
Q3- PQ, CD are parallel chords of a circle, the tangent at D cuts PQ produced at T, B is a point of contact of the other tangent from T; prove that BC bisect PQ.

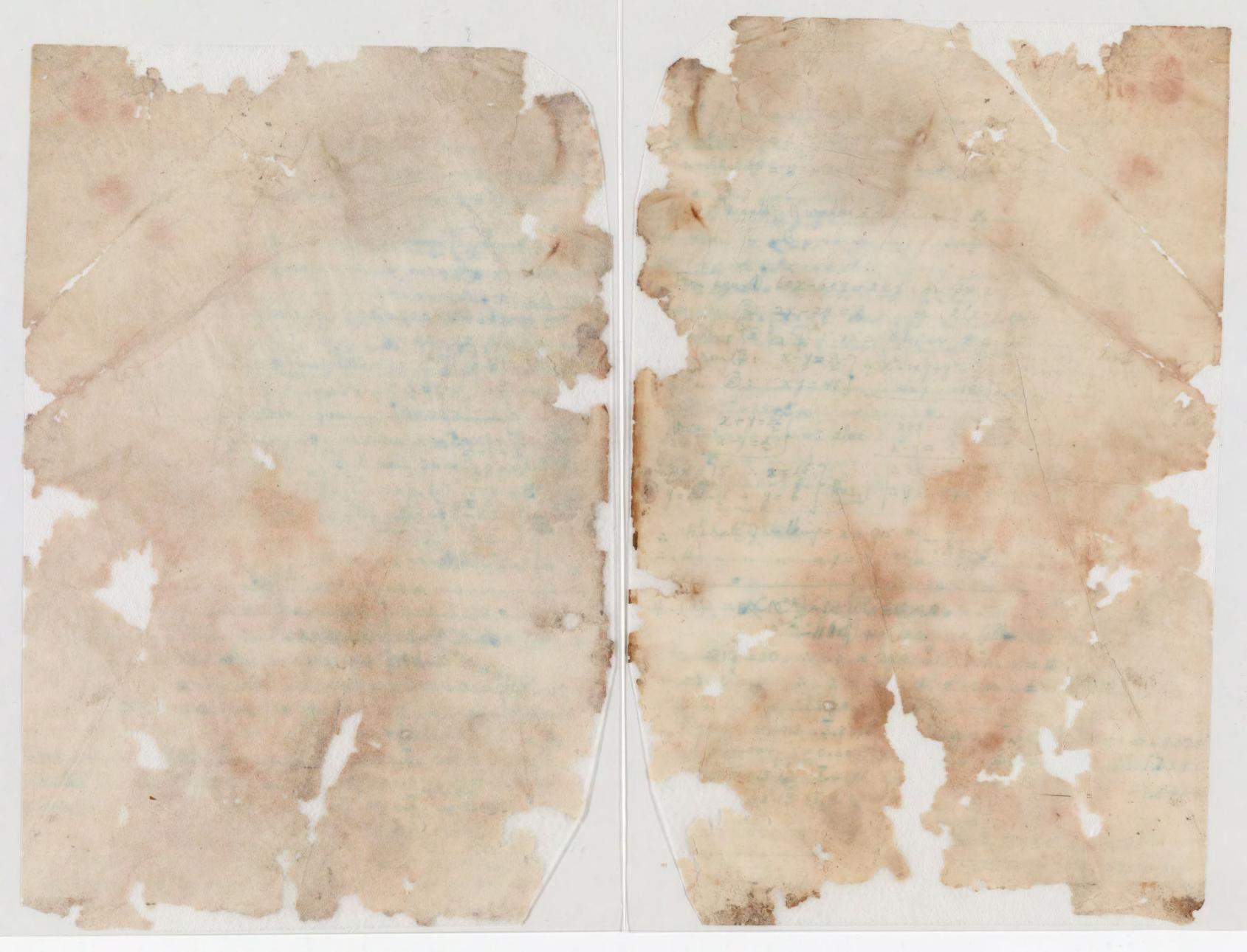
A man has a certain amount of 4 % stock. He sells it at 114 and invests one - third the proceed in 5% at 95, and the rest in 2% % stock at 108. He then finds that his annual income is reduced by £ 12 10s. . Find the amount of the original stock had he.

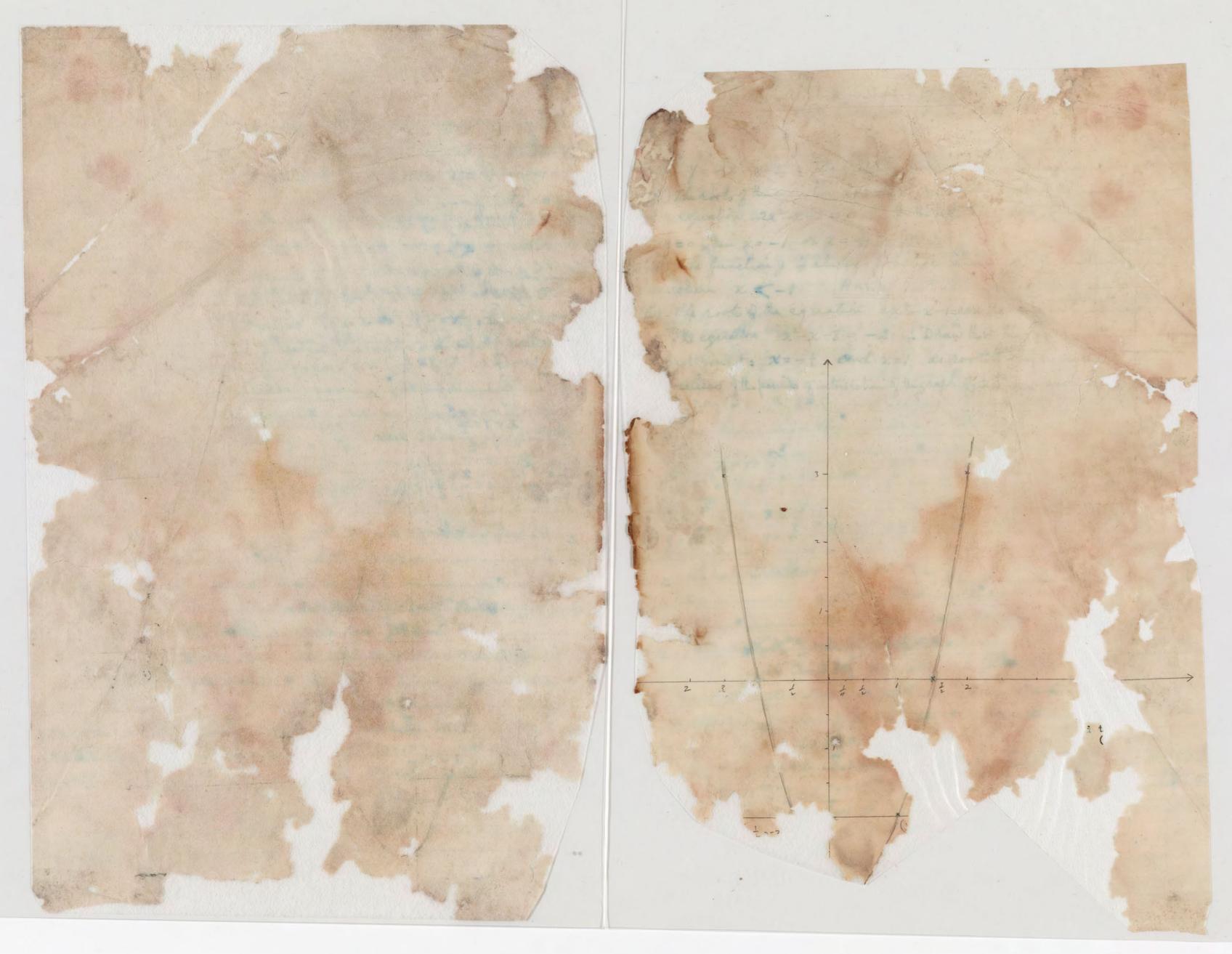
Q5- ABC is a triangle in a horizotal plane \$ BC = 120 yd., angle BAC = 90 and angle ABC = 34. At A is a vertical pole AT, the angle of elevation of T from B = 22, calculate

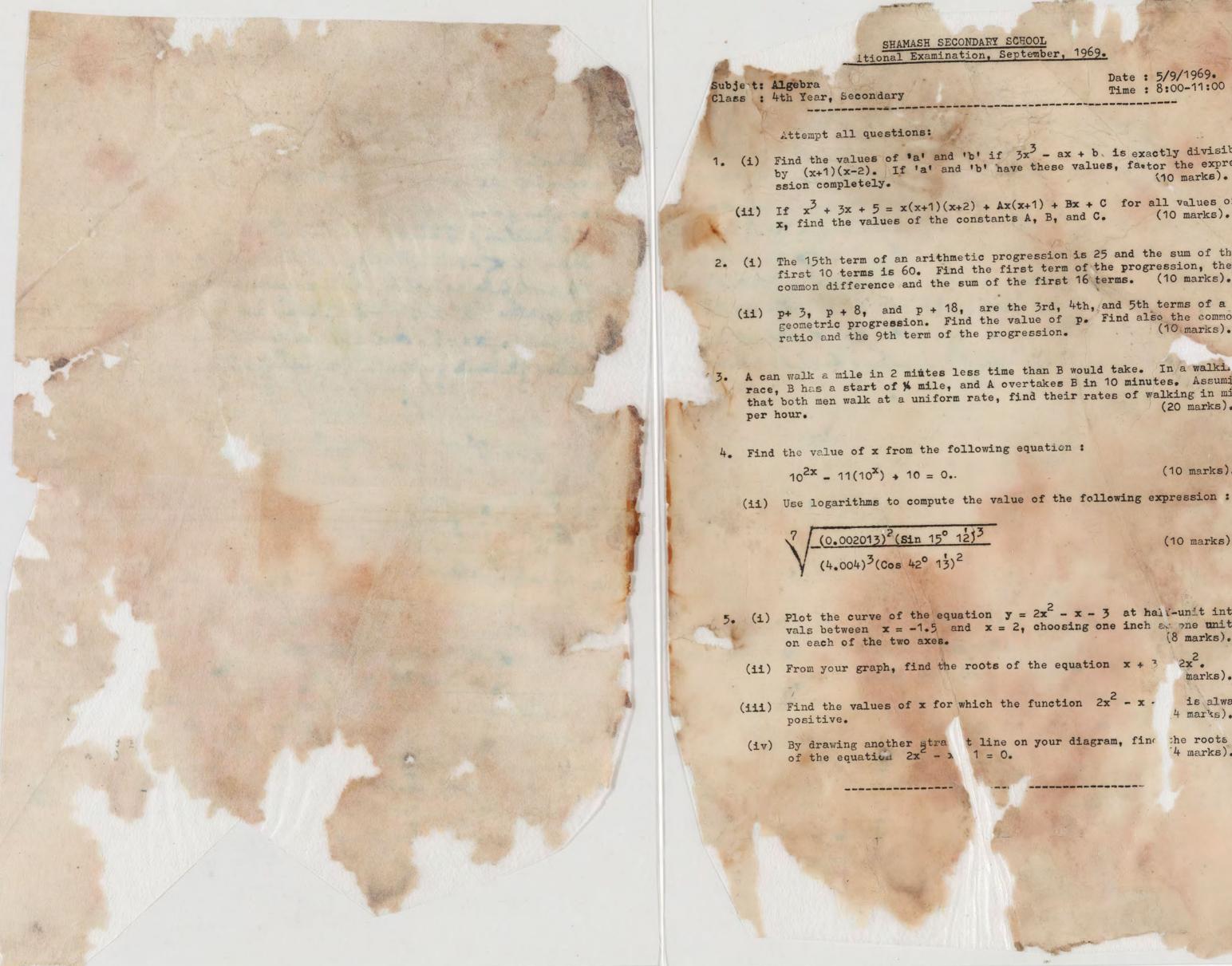
the height of AT , and the angle of elevation of T from C ,

 $(T b) = (T c)^2$









SHAMASH SECONDARY SCHOOL tional Examination, September, 1969.

> Date : 5/9/1969. Time : 8:00-11:00 a.m.

1. (i) Find the values of 'a' and 'b' if $3x^3 - ax + b$ is exactly divisible by (x+1)(x-2). If 'a' and 'b' have these values, factor the expre-(10 marks).

(ii) If $x^3 + 3x + 5 = x(x+1)(x+2) + Ax(x+1) + Bx + C$ for all values of (10 marks).

2. (i) The 15th term of an arithmetic progression is 25 and the sum of the first 10 terms is 60. Find the first term of the progression, the common difference and the sum of the first 16 terms. (10 marks).

(ii) p+ 3, p + 8, and p + 18, are the 3rd, 4th, and 5th terms of a geometric progression. Find the value of p. Find also the common (10 marks).

3. A can walk a mile in 2 mintes less time than B would take. In a walking race, B has a start of 14 mile, and A overtakes B in 10 minutes. Assuming that both men walk at a uniform rate, find their rates of walking in miler (20 marks).

(10 marks).

(10 marks).

5. (i) Plot the curve of the equation $y = 2x^2 - x - 3$ at hali-unit intervals between x = -1.5 and x = 2, choosing one inch as one unit (8 marks).

2x2. (ii) From your graph, find the roots of the equation x + 3 marks).

(iii) Find the values of x for which the function $2x^2 - x$.

is always 4 marks).

the roots '4 marks).

Subject: Algebra Class : 4th Year, Secondary Attempt all questions: ssion completely. 8 4 2 2 CARYEN bern of on writhmetic and three to terms is for the first the first wires of the pro-(21) p+ 3, · · G, and .p. · 78, are the fritt to: per hour. what blues W white the this this is all all " 4. Find the value of x from the following equation : tener, & has set at a differ and A overtains if in in $10^{2x} - 11(10^{x}) + 10 = 0$. (ii) Use logarithms to compute the value of the following expression : : some the following equation : (0.002013)²(sin 15° 12)³ O - O - CONDER -(4.004)³(cos 42° 13)² server all officence of Antheward and on each of the two axes. positive. (LFE)

SHAMASH SECONDARY SCHOOL

Conditional Examination, September, 1969.

Date : 5/9/1969. Time : 8:00-11:00 a

1. (i) Find the values of 'a' and 'b' if $3x^3 - ax + b$ is exactly divisible by (x+1)(x-2). If 'a' and 'b' have these values, factor the expre-(10 marks).

(ii) If $x^3 + 3x + 5 = x(x+1)(x+2) + Ax(x+1) + Bx + C$ for all values of x, find the values of the constants A, B, and C. (10 marks).

2. (i) The 15th term of an arithmetic progression is 25 and the sum of the first 10 terms is 60. Find the first term of the progression, the common difference and the sum of the first 16 terms. (10 marks).

(ii) p+3, p+8, and p+18, are the 3rd, 4th, and 5th terms of a geometric progression. Find the value of p. Find also the common ratio and the 9th term of the progression. (10 marks).

3. A can walk a mile in 2 mintes less time than B would take. In a walking race, B has a start of 14 mile, and A overtakes B in 10 minutes. Assuming that both men walk at a uniform rate, find their rates of walking in miles (20 marks).

(10 marks).

(10 marks).

5. (i) Plot the curve of the equation $y = 2x^2 - x - 3$ at half-unit intervals between x = -1.5 and x = 2, choosing one inch as one unit (8 marks). (ii) From your graph, find the roots of the equation $x + 3 = 2x^2$. (4 marks). (iii) Find the values of x for which the function $2x^2 - x - 3$ is always (4 marks). (iv) By drawing another straight line on your diagram, find the roots of the equation $2x^2 - x - 1 = 0$. (4 marks). (4 marks).

SHAMASH SECONDARY SCHOOL Conditional Examination, September, 10

Date 1 5/9/ 969.

.

This Yang, Locondary

sudayIA ::

tenokteoup ils tructt.

- 1. (1) Find the values of 'a' and 'b' if $5x^3 ax + b$ is excelly skyink's by (x+1)(x-3). If 'a' and 'b' have these values, factor the values
- (11) If x + 5x + 5 = x(x+1)(x+2) + Ax(x+1) + Bx + C for all volves of x, find the values of the constants A, B, and C. (70 makes).
- (1) The 15th term of an orithmetic progression is 25 and the sum of the first 10 terms is 60. Find the first term of the progression, the country difference and the sum of the first 16 terms. (10 mores).
- (11) p+ 3, p + 8, and p + 18, are the 3rd, 6th, and 5th terms of a geometric programsion. Find the value of p. Find also the common retio and the 9th term of the programsion. (10 match).

3. A can walk a mile in 2 minites leas time than B would take. In a walking race, B has a start of % mile, and A overtakes B in 70 minuter. Assuming that both man walk at a uniform rate, find their rates of walking in Mil per hour.

. Find the vilue of x from the following equation :

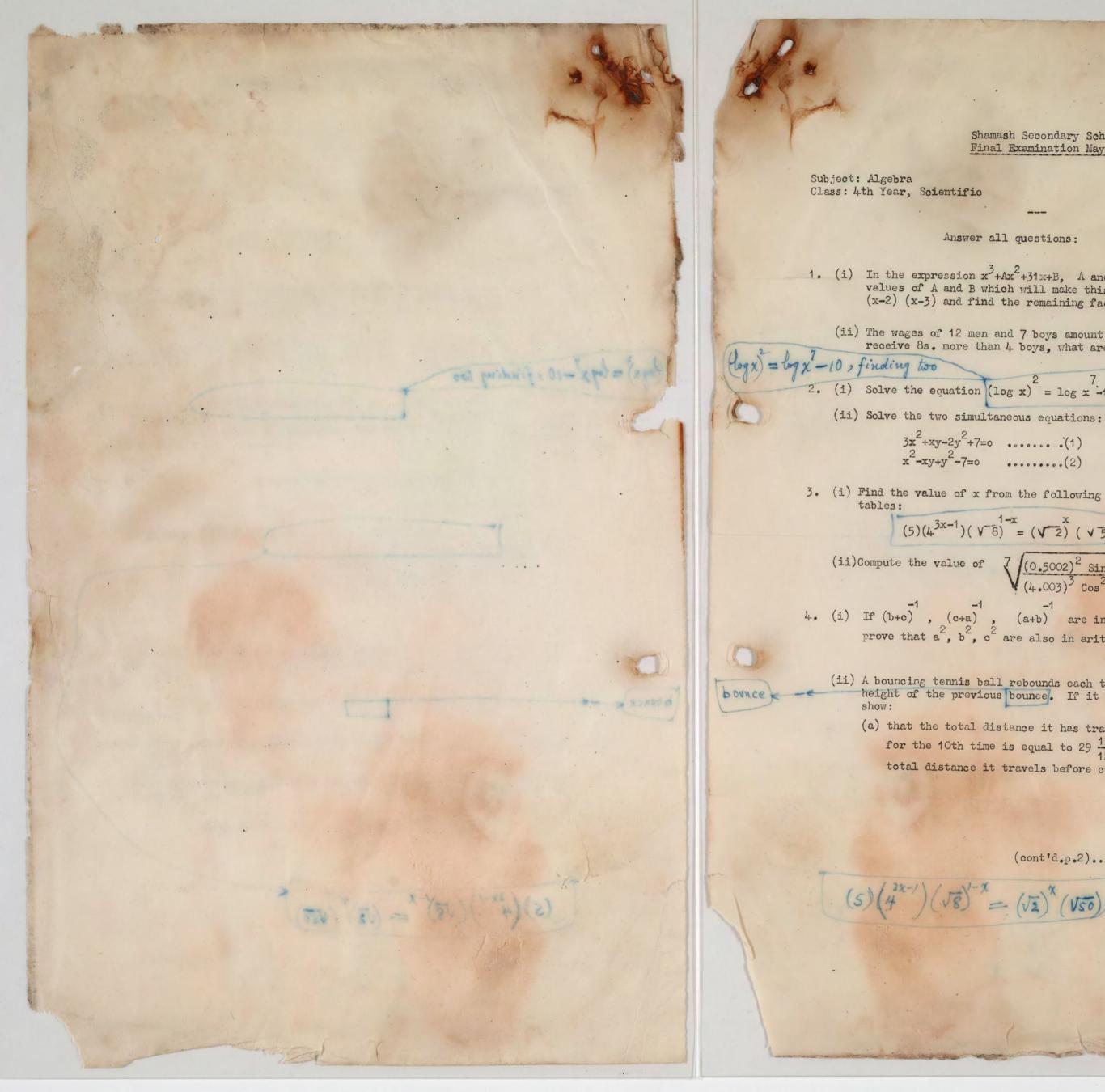
(11) Use logarithms to compute the value of the following expression 1.

V (0.002013)²(84m 15° 12)³ (4.004)³(008 42° 13)²

5. (1) Plot the curve of the equation y = 2x² - x - 3 at helf-unit interve vals between x = -1.5 and x = 2, choosing one inch as one unit on each of the two axes.

- (11) From your graph, find the roots of the equation x + 3 = 2x . (4 marks).
- (111) Find the values of x for which the function 2x" x 5 4m so ways a gent tive.
 - (1v) By drawing another gravitest line on your diagram, that the roote of the equation 2x - x - 1 = 0.





Shamash Secondary School Final Examination May 1969

Date: 14/5/1969 Time: 8:00 - 11:00 a.m.

Answer all questions:

(i) In the expression x³+Ax²+31x+B, A and B are constant. Find the values of A and B which will make this expression divisible by (x-2) (x-3) and find the remaining factor.

(10 marks) (ii) The wages of 12 men and 7 boys amount to 29 13s. If 3 men together receive 8s. more than 4 boys, what are the wages of each man and boy ?
 (10 marks)

on
$$(\log x)^2 = \log x - 1$$
, inding two values for x.
(10 marks)

 $3x^{2}+xy-2y^{2}+7=0$ (1) $x^{2}-xy+y^{2}-7=0$ (2)

3. (i) Find the value of x from the following equation without using the

$$\begin{array}{c} \sqrt{8} & = (\sqrt{2}) (\sqrt{50}) \\ \text{of} & \sqrt{(0.5002)^2 \sin^3 14^\circ 25'} \\ \sqrt{(4.003)^3 \cos^2 15^\circ 27'} \\ \text{(10 marks)} \\ -1 \\ \text{(a+b)} & \text{are in arithmetical progression} \\ \text{(c}^2 \text{ are also in arithmetical progression.} \end{array}$$

(10 marks)

sion,

(10 marks)

(ii) A bouncing tennis ball rebounds each time to a height one half the height of the previous bounce. If it is dropped from a height of 10 ft.,

(a) that the total distance it has travelled when it hits the ground for the 10th time is equal to 29 $\frac{123}{128}$ ft. (b) Show also that the total distance it travels before coming to rest is 30 ft. (10 marks)

(cont'd.p.2) ...

Shawash Secondary School

14mo: 8:00 - 11:00 c.m.

(S) C=T- Vayzan

(1) In the expression x²+31'+8. A and B are constant. Find the values of A and B which will make this expression divisible by (x-2) (x-3) and find the remaining factor.

(11) The wages of 12 man and 7 boys amount to D) 13s. IF 3 man togethe regetve Sa. more than 4 boys, what are the wages of each man and boy

. (1) Solve the soustion (log x) = log x -t. . Liking two values for : (11) Solve the two similaneous equations: 322 +xx+2y +7=0 + +++++ + (1)

3. (1) Find the value of x from the following equation without uning the

(5)(L^{3x-1})(V3) = (X²) (V3) (11) Compute the value of] (0.5002) 2343 12.0

4. (1) IF (b+c) , (c+c) , (c+b) are in artitumetinal progression, prove that a , b , o are also in suitmetical progression.

(41) A bouncing teamin only rebounds each time to a holght one half the height of the privious boun at 16 it is irop of from a height of 10 f.

otel distance it trevels before coming to rest is 30 ft.

.. (S. C. D' imon)

(cont'd) ..

Algebra

- 5. (i) Plot the curve of the function $3+2x-x^2$ for values of x from

 - positive.

 - - $3+2x-x^2=\frac{x}{2}+2$.

4th Year. Scientific

-2-

14/5/1969.

x=-2 to x=4, choosing one half of an inch for each unit on the axis of x and on the axis of y. (4 marks) (ii) From your graph, find the roots of the equation $x^2-3=2x$. (3 marks) (iii) Find the values of x for which the function $3+2x-x^2$ is always (3 marks) (iv) Find from your diagram the value of x at which the function 3+2x-x² is greatest and state the maximum value. (3 marks) (v) By plotting another curve on the same diagram, find the values of x for which $3+2x-x^2 > \frac{x}{2} + 2$. (4 marks) (vi) From your last diagram, find the roots of the equation

(3 marks)

29 - 1 b+ ++ 85 5. (1) Flot the ourve of the function 3+2x+2 for values of a from the state and the send to ret, choosing one half of an inch for each unit on the ands of x and on the axis of y. (11) From your graph, find the roots of the equation x - Selv. (iii) Find the values of z for which the function Stars' is values -.evidicod and real row your discrements while at a shirt while interaction the second state in the second s . billov aunitana oni state has testaers at "x-2546 (v) By plotting another ourve on the sead diagram, find the values 1.2 + # < Sz-22+E do.tdv vol z to

MT' THE ADDRESS I

2221058 - 22

2. 29 911 + × 2. 244

. (Bishop)

and an and the maker

The Later . Colonalitie the the /3/1963.

(vi) From your last disgroup find by roots of the courtient

+ 1 Flair, and stran ward a - 1/2 - 2/2 - 2/2 - 2/2 1 min Pl

it may I have a fig 135. also I want I am the

Dime of APAPEL of incase = ix Polar 1

alle y = 101 = y - 181 yes a Dara all = Aron

we be the date which and the second second second

States and the self

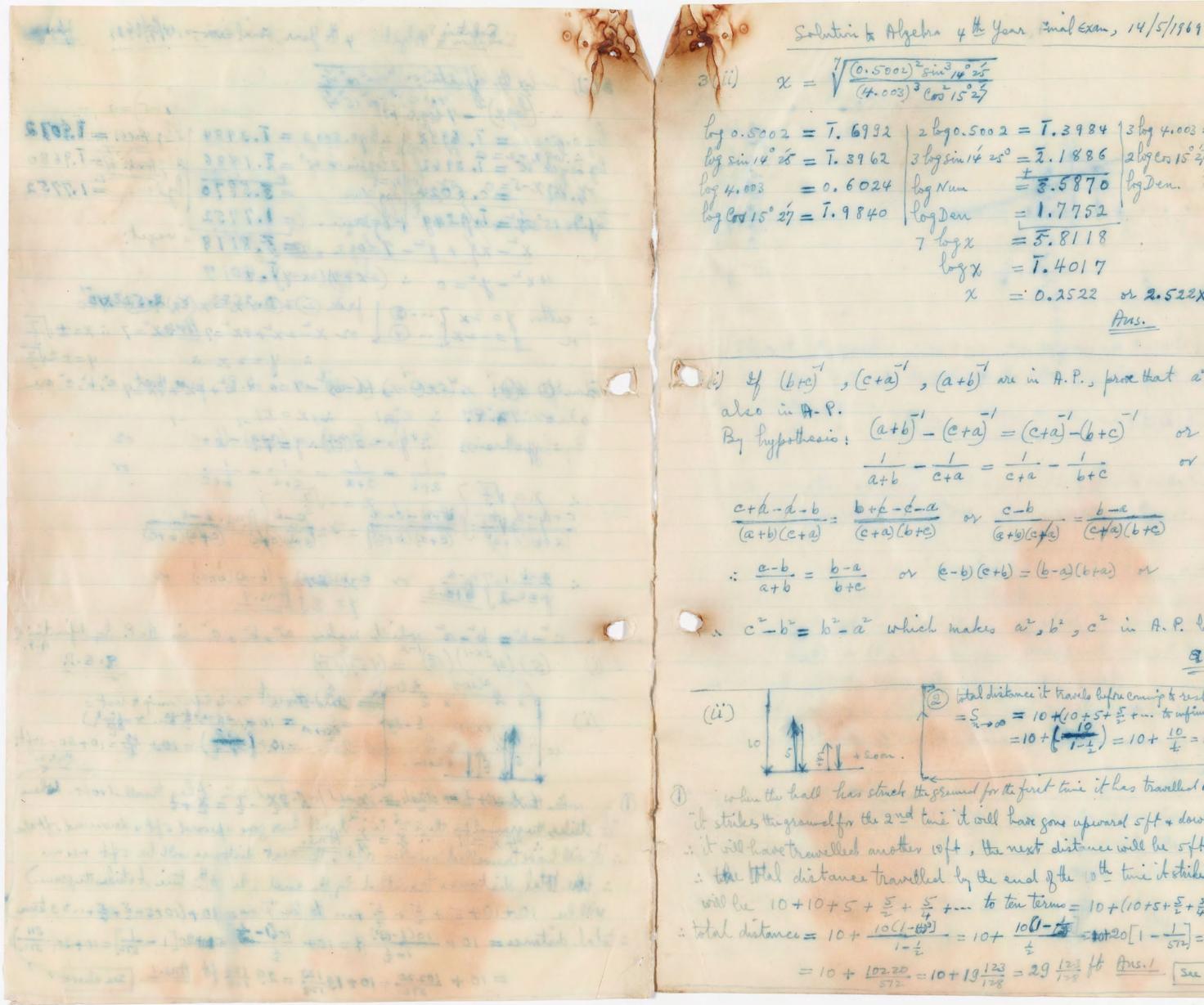
in ways of one have a stable - - The and

about the appropriate the second of the

Shamash Seconder School Final Examination May 1969 Solution to algebra Questi 3 # year 14/5/1969. 1. (1) Dwide by (x-2 1x + Ax + 31 x+B 1 x + B 1 x + 2A+35 (A+2)x+31x+0 (A+2) x2-2(A+2)x (2A+4+31)x+B (2A+35) x+B (2A+35) x-4A-70 4A+B+70 = 0 : B=-4A-70 now Divide the Questient by (x-3) := x-3 | x+(A+2)x+2A+35 | x+A+5 (A+5)x+2A+35 (A+x)x-3A-15 5-A+50 :: 57++50=0....(2) : 5A+50=0 : A=- 50 =-10 : the 3rd Factor is = 2+ A+5 = : B=-4(-19)-70=-30 = x -10+5= x-5 : A=-10) and the expression 13: X -10x + 51x - 30 = (x-2)(x-1)(x-2) B=-30 1 Aus. 3v9 factor = x-5 "an alternative method, by the manided theorem, when x=2 then 2 + 2 A + 2 × 81 + B = 0 . + A + B = -70 ... - O also when x = 2, then 5A = - 50 : A = -10 : from D: 4(-10)+B=-70 : B=-30 .: A = -10 Auss Factoring, weget x 3-10x2+31x-30 = (x-2)(x-3) (x-5) (ii) 12 mm + 7 hoys = £ 9 138. also 3 mm = 4 hoys + 88. let x shillings be the wages of me boy : 12 y+7 x = 9 x 20+13 or 12 y+7x=193 also 34 = 4x + 8' or 34 - 4x = 8 - - - - @ : 12y+7 K=193 --- 0 : 23 X=161 : X= 161 = 7 Shillingo : wags fore boy = x shill = 75. 200. Jo Ons.

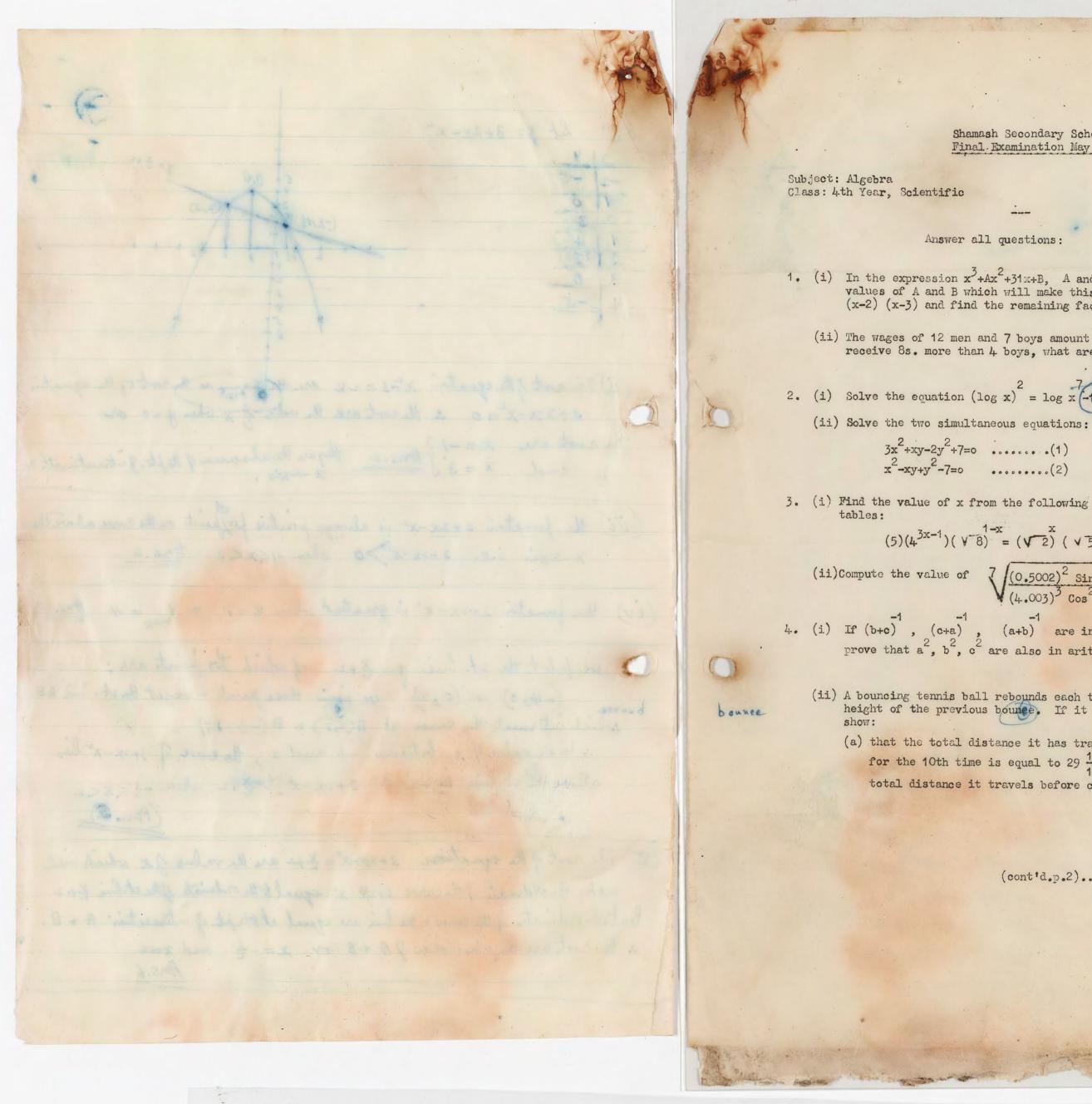
$$= \frac{1}{2} \frac{$$

14/5/1269 page 2 x) = log x -10 ~ (14x-2) (1+x-5)=0 Aus. 1 . x = 10 = 100000 Ans. 2 E fiadding , weget: x+y)(2x-y)=0from (2)+3: x2-x(2x)+(2x)-7=0 or x-2x2+ 4x2=7 or 3x2=7 : x=±√3 $y = 2 \chi = 1$ $y = 2 \sqrt{3}$ $y = \pm 2 \sqrt{3}$ $(-2x)^{2} - 7 = 0 \text{ or } x^{2} + 2x^{2} + 4x^{2} = 7$: x=±1 2(±1): y=72 = - 13 Aus. 2 = - 2/3 Aus. 2 x=== 1 Ans. 4 y= 2 } Ans. 4 -) × 50) XH 2 $\frac{\chi}{2} \stackrel{\text{def}}{\Rightarrow} \frac{g_{\chi}}{2} - \frac{1}{2} = \frac{\chi}{2} + \frac{1}{2}$ Ans.



Solution to Algebra 4th year imal Exam, 14/5/1969 pages tog 0.5002 = T. 6992 2 bg0.5002 = T. 3984 13 bg 4.003 = 1.8072 lug sin 14 25 = T. 3962 3 log sin 14 25° = Z. 1886 2 log co 15° 27 = T.9680 = 3.5870 logDen. = 1.7752 = 1.7752 = 5.8118 . = 1.4017 = 0.2522 or 2.522×10 Dili) of (b+c), (c+a), (a+b) are in A.P., prove that a, b, c'are $a+b = c+a = c+a = b+c \qquad or$ Q: c-b= b-a which makes a2, b2, c2 in A.P. by definition of I when the hall has struck the ground for the first time it has travelled off. When "It stilles the grand for the 2nd time it will have gone upward off & downward oftake . it will have travelled another 19ft, the next distance will be sift + so me i the that distance travelled by the end gthe 10th time it strikes the ground : total distance = 10 + $\frac{10(1-10)}{1-1} = 10 + \frac{10(1-10)}{1-1} = 10 + 20(\frac{511}{572}) = 10 + 20(\frac{511}{572})$ = 10 + 102.20 = 10 + 19 123 = 29 123 ft thus. 1 See abore T

Salatin & Algebra 4 the form had ever 14/5/1969 for 1 St - Martes Contract 50) Let y= 3+2x-x2 $(-\frac{1}{2},$ -2 -5 ing shaped at = T. 29 62 / 1 minute at - The 18 25 rations of - T.9630 of the - c. 6024 - an . at the 10 - a fight -10 1 4 4 -5 (i) The roots of the equation x=3= 2x are the same as the roots of the equation 3+2x-x=0 is the roots are the values of x when y=0 or Dig of and a grant of the set of a start of a start of the set of the the roots are x = -1 Ans. 2 they are the abscission of the pts. 8 intersection with the and x = 3 I Ans. 2 $x - a_{x}$ is . Be Brother - End St - Com & Com State St - Hand - China the product a state of the set of the fight a state war and (iii) the function 3+2x-x2 is always posities for points on the curve above the x-axis i.e. 2+2x-x20 when -1<x<3 Ams.3 The set of the property with the set of the set (iv) the function 3+2x-x2 is greatest when x=1 + Imax= 40 Ans. 4 Que that a to the hardingto dates of place in goods and did to () we plot the st. line y = 2+2 of which two points are: (-4,0) + (0,2) we join these points + we get the st. line AB and interest the second there and a second of the second and the a is hours to come at the second to be dead in the second states of the which intersects the curve at A(2,3) + B (-2014) i for all values of x between -2 and 2, the euror of 3+2x-x hes They the state the second a second to the shall be and the above the st. line \$ +2 - 3+2X-x2 > \$+2 when -2 < X <2. A The second sec ÷ 4 I The root of the equation 3+2x-x= x+2 are the value of x which well make the ordinate of the curve 3+2x-22 equal to the ordinate of the st. line 2 + 2 Carryter inthematic of the state by bours and build allow allow the state of the Entite ordinates of the curve + the line are equal at the pts. of intersection A + B. determine the stand of the the the prover search and the is the roots are the alescence of A + B or $x = -\frac{1}{2}$ and x = 2the strate and the total and the liter was a manufally belief a





Shamash Secondary School Final Examination May 1969

> Date: 14/5/1969 Time: 8:00 - 11:00 a.m.

Answer all questions:

(i) In the expression x³+Ax²+31x+B, A and B are constant. Find the values of A and B which will make this expression divisible by (x-2) (x-3) and find the remaining factor.

(10 marks)

(ii) The wages of 12 men and 7 boys amount to £9 13s. If 3 men together receive 8s. more than 4 boys, what are the wages of each man and boy ? (10 marks)

$$x)^{2} = \log x (-10, finding two values for x. (10 marks))$$

3. (i) Find the value of x from the following equation without using the

$$\sqrt{\frac{(0.5002)^2 \sin^3 14^\circ 25'}{(4.003)^3 \cos^2 15^\circ 27'}}$$
 (10 marks) (10 marks)

(a+b) are in arithmetical progression, prove that a², b², c² are also in arithmetical progression. (10 marks)

(ii) A bouncing tennis ball rebounds each time to a height one half the height of the previous bounce. If it is dropped from a height of 10 ft.,

(a) that the total distance it has travelled when it hits the ground for the 10th time is equal to $29 \frac{123}{128}$ ft. (b) Show also that the total distance it travels before coming to rest is 30 ft. (10 marks)

(cont'd.p.2) ..

Subjects Algebre ass: Ath Year; Solenthrie

Time: 8:00 - 11:00 sunt.

anoitaeup ils reward.

1. (1) In the expression x²+Ax²+31:+B. A and B are constant. Find the values of A and B which will make this expression divisible by (x-2) (x-3) and the remaining factor.

(10 marice)

(11) The wages of 12 mon and 7 boys amount to 29 13s. If 3 men together receive 8s. more than 4 boys, what are the wages of each man and boy ? (10 marks)

2. (1) Solve the equation (log x) = log x (-10, finding the values for x. (ii) Solve the two simultaneous coustions:

3. (1) Find the value of x from the following equation without using the

 $(5)(k_{1}^{3_{22}-4})(V,0) = (V,2)(V,30)$ (10 marten) (11) Compute the value of $\sqrt{(0.5002)^2 \sin^3 th^2 25^2}$ (1.003) Cos 15° 27

4. (1) If (bec) , (c+a) , (a+b) are in arithmetical progression, prove that a, b, o' are also in orthogethood progragaton. (to mandes)

(11) A boundar temale ball rebounds each time to a height one half the height of the provious bounder. If it is dropped from a height of 10 ferr

(a) that the total distance it has travelled when it hits the ground for the 10th time is equal to 29 123 rs. (b) Show also that the total distance it travels before coming to rest is 30 ft.

.. (S. C. 5' Snup)

Algebra

(cont'd) ..

- - positive.

....

 $3+2x-x^2=\frac{x}{2}+2$.

4th Year. Scientific

-2-

14/5/1969.

5. (i) Plot the curve of the function $3+2x-x^2$ for values of x from x=-2 to x=4, choosing one half of an inch for each unit on the axis of x and on the axis of y. (4 marks) (ii) From your graph, find the roots of the equation $x^2-3=2x$. (3 marks) (iii) Find the values of x for which the function $3+2x-x^2$ is always (3 marks) (iv) Find from your diagram the value of x at which the function 3+2x-x² is greatest and state the maximum value. (3 marks) (v) By plotting another curve on the same diagram, find the values of x for which $3+2x-x^2 > \frac{x}{2} + 2$. (4 marks) (vi) From your last diagram, find the roots of the equation

(3 marks)

12/5/1969 .

Algebra Ath Tenr. Scientific

.. (B' inop)

Subject: Algebra Class: 4th Year, Scientific

Answer all questions:

- - (ii) Solve the two simultaneous equations:

 $3x^{2} + xy - 2y^{2} + 7 = 0$ (1) $x^{2} - xy + y^{2} - 7 = 0$ (2)

tables:

(10 marks) (10 marks)

 $(5)(4^{3x-1})(\sqrt[y]{8}) = (\sqrt{2})(\sqrt{50})$ (ii)Compute the value of $\sqrt{(0.5002)^2 \sin^3 14^\circ 25'}$ (10 marks) $(4.003)^3 \cos^2 15^\circ 27'$ 4. (i) If (b+c), (c+a), (a+b) are in arithmetical progression, prove that a², b², c² are also in arithmetical progression.

- show:

5. (1) Plot the curve of the function 3+2x-x for values of x from xe-2 to xel, choosing one half of an inch for each unit on the axis of x and on the axis of y. (4. marita).

(11) From your graph, find the roots of the equation x -3=2x.

(111) Find the volues of x for which the function 3+2x-x² is always . avittkao

foldade the four disgram the value of x at which the function 342n-x" is greatest and state the maximum value.

(v) By plottin, another curve on the same diagters, find the values of a for which 3+2x-x 2 = + 2. (4 multa)

(vi) From your last diagram, that the roots of the equation 3+22-x = x + 2.

Shamash Secondary School Final Examination May 1969

> Date: 14/5/1969 Time: 8:00 - 11:00 a.m.

1. (i) In the expression $x^3 + Ax^2 + 31x + B$, A and B are constant. Find the values of A and B which will make this expression divisible by (x-2) (x-3) and find the remaining factor.

(10 marks)

(ii) The wages of 12 men and 7 boys amount to £9 13s. If 3 men together receive 8s. more than 4 boys, what are the wages of each man and boy ? (10 marks)

2. (i) Solve the equation $(\log x)^2 = \log x - 1$, inding two values for x. (10 marks)

(10 marks)

3. (i) Find the value of x from the following equation without using the

(ii) A bouncing tennis ball rebounds each time to a height one half the height of the previous bounce. If it is drepped from a height of 10 ft.,

(a) that the total distance it has travelled when it hits the ground for the 10th time is equal to $29 \frac{123}{128}$ ft. (b) Show also that the total distance it travels before coming to rest is 30 ft. (10 marks)

(cont'd.p.2) ..

Shamah Socondary School.

Date: 14/3/1969 .M.s 00:11 - 00:8 : ankt

Subject: Algebra Oless: Ath Year, Schentifte

Anaver all questions:

1. (1) In the expression x +Ax +312+8, A and B are constant. Find the values of A and B which will make this expression divisible by (x-2) (x-3) and find the remaining factor.

(40 maxics)

(11) The wages of 12 man and 7 boys amount to £9 13s. If 3 man together receive Ss. more than & boys, that are the wages of each man and boy ?

2. (1) Solve the squation (log x) = log x -tu, inding two values for x.

(11) Solve the two simultaneous equations:

(S) cal-Survey.

(to marks)

3. (4) Find the value of x from the following sountion without using the : coldat

 $(5)(4^{3z-1})(\sqrt{6}) = (\sqrt{2})(\sqrt{5}) (\sqrt{5}) (\sqrt{5}) (\sqrt{5})$ (11)Compute the value of $\sqrt{(0.5002)^2 34n^3 14^{\circ} 29'}$ (4.003) $\cos^2 15^{\circ} 27'$

4. (1) If (bea) , (cos) , (cos) are in emitimovied progression, preve that a b , o' are also in arithmetical pregromaton. (to marriss)

(41) A bouncing tennis ball rebounds each time to a height and half the height of the provious bounce. If it is dropped from a height of 10 ft., : worle,

(a) that the total distance it has travelled when it hits the ground for the foth time is equal to 29 in it. (b) Show also that the .rt OE ai fear of gaines oracled alevant it constabl latet

.. (S. g. bt \$ 200)

(cont'd) ...

Algebra

- the axis of x and on the axis of y.

 - positive.

 - of x for which $3+2x-x^2 > \frac{x}{2} + 2$.
 - $3+2x-x^2=\frac{x}{2}+2$.

14/5/1969.

4th Year. Scientific

-2-

5. (i) Plot the curve of the function 3+2x-x² for values of x from x=-2 to x=4, choosing one half of an inch for each unit on (4 marks) (ii) From your graph, find the roots of the equation $x^2-3=2x$. (3 marks) (iii) Find the values of x for which the function $3+2x-x^2$ is always (3 marks) (iv) Find from your diagram the value of x at which the function 3+2x-x² is greatest and state the maximum value. (3 marks) (v) By plotting another curve on the same diagram, find the values (4 marks)

(vi) From your last diagram, find the roots of the equation

(3 marks)

+4/5/1999 .

ith Low. Solenthite

0

.. (5* Juoo)

5. (1) Flot the curve of the function 3+2x-x for values of x from x=-2 to x=b, choosing one half of an inch for each unit on the axis of x and on the axis of y.

(extran 4)

(ii) From your graph, find the roots of the equation x²-342x,
 (ii) From your graph, find the roots of the equation (3 modes)

(111) Find the values of x for which the function 3+2x-x² is always resitive.

(iv) Find from your diagram the value of it at which the function 3*2x-x² is greatest and state the middan value. () and so

(v) By plotting another ourse on the same diagram, find the values of x for which $3+2x-x^2 \sum \frac{1}{2} + 2$. (A marked)

(vi) From your last dispress, find the roots of the countion (x_1) From $y_2 = \frac{N}{2} + 2$.

(andraam E)

7/4/1969 Solution to the 3rd + 4th Quarter Exam. in Algebra () The square root of $(a^3 - \frac{1}{a^3}) - 6(a - \frac{1}{a})(a^3 - \frac{1}{a^3}) + 9(a - \frac{1}{a})^2$ is equal: $\left(a^{3}-\frac{1}{a^{3}}\right)^{2}-6\left(a-\frac{1}{a}\right)\left(a^{3}-\frac{1}{a^{3}}\right)+9\left(a-\frac{1}{a}\right)^{2}=\left[\left(a^{3}-\frac{1}{a^{3}}\right)-3\left(a-\frac{1}{a}\right)\right]^{2}$ $= a^{3} - \frac{1}{a^{3}} - 3(a - \frac{1}{a}) = a^{3} - 3a + \frac{3}{a} - \frac{1}{a^{3}}$ also $\sqrt[3]{a^3-3a+\frac{3}{a}-\frac{1}{a^3}} = \sqrt[3]{(a-\frac{1}{a})^3} = a-\frac{1}{a} \xrightarrow{Ans.}$ (ii) Prove the identity: bc(b-c) + ca(c-a) + ab(a-b) = -(b-c)(c-a)(a-b) $(1.H.S. = bc(b-c) + ac^{2} - ac + ab - ab'$ $= bc(b-c) + a^{2}(b-c) - a(b^{2}-c^{2})$ = $(b-c)[bc + a^2 - a(b+c)] = (b-c)(bc + a^2 - ab - ac)$ =(b-c)[a(a-b)-c(a-b)]=(b-c)(a-b)(a-c)= -(b-c)(c-a)(a-b) Q.E.D. $:= 2(x-1) = 6(\sqrt{x}-1) + (\sqrt{x}-1)(\sqrt{x}+1)$ 2. (i) solve: $\frac{\chi - 1}{\sqrt{\chi} - 1} = 3 + \frac{\sqrt{\chi} + 1}{2}$ $x_{2x-2} = 6\sqrt{x} - 6 + x - 1$ $x_{6}\sqrt{x} = x + 5$ 3.36×=x2+10×+25 ∴ × - 26×+25=0 : $(\chi - 1)(\chi - 25) = 0$: $\chi = 1$ and X = 25 JAns. but x = 1 does not satisfy the original equation + should be rejected. Hence X= 25 Ans. $3 (1)_{\chi=1}^{3} \frac{(0.002001)^{3} (\sin 16^{\circ} 23)^{2}}{(1.003)^{5} (\tan 41^{\circ} 16)^{2}}$ 3 log 0.002001 = 9.9036 5 log 1.003 = 0.0060 2 logsin 16° 23 = 2. 9008 2 logtan 41 16= 108 66 log Num. = 10.8044 log Den = 1.49226 togo.002001 = 3.3012 log Den . = 3. 8926 log sin 16° 23 = T. 4504 lig 1.003 = 0.0012 7 by x =10.9118 log tan 41° 16 = 1.9433 log x =2.7017 0.05031 $\chi = 0.07975$ or $\chi = 7.975 \times 10^{-2}$ Ams.

$$\frac{1}{\sqrt{1+x} + \sqrt{1-x}} = \frac{(\sqrt{1+x} + \sqrt{1-x})^2}{(\sqrt{1+x} - \sqrt{1-x})} = \frac{1}{\sqrt{1+x} - \sqrt{1-x}} = \frac{1}{\sqrt{1+x} - \sqrt{1-x}} = \frac{1}{\sqrt{1+x} - \sqrt{1-x}} = \frac{1}{\sqrt{1+x} - \sqrt{1-x}} = \frac{1}{\sqrt{x}} = \frac{1}{\sqrt{x$$

nt. vi algebra 7/4/69 Pagez $\frac{1+\chi+1-\chi+2\sqrt{1-\chi^2}}{2\chi} = \frac{2+2\sqrt{1-\chi^2}}{2\chi} =$ $\frac{1+\sqrt{1-\frac{4b^{2}}{(b^{2}+1)^{2}}}}{\frac{2b}{b^{2}+1}} = \frac{1+\frac{\sqrt{(b^{2}+1)^{2}-4b^{2}}}{b^{2}+1}}{\frac{2b}{b^{2}+1}} = \frac{1+\frac{1+b^{2}}{b^{2}+1}}{\frac{2b}{b^{2}+1}}$ $\frac{+1+\sqrt{(b^2-b^2)}}{2b} = \frac{b^2+1+b^2-1}{2b} = \frac{2b^2}{2b} = \frac{b}{Aus}.$: [2(bgx)-][bgx-2]=0 $x = 10^{2} \text{ or } \chi = \sqrt{10} = 3.162 \text{ Greet b 3 deg}$ or $\chi = 1005 \text{ Aus.}$ n-1(6) = n {6 + 12n-6} = 12 n^{2} 3 22² : 45 Q.E.D. » Ng = ? = 11a+55d or 15a-3d = 0 --- 0 (2a+3d) or 17=2a+3d . - - · @ a + Tel= 2 = 13d = 170 f.d= ; 5 = 3 d :: $d = 5^{-1}$:: $a = 1^{-2} \frac{3}{2} \frac{6}{1} \frac{1}{3} \frac{1}{3}$ 4(2+35) = 4×37. = 148 Aus. 2

$$\frac{dument}{dt} = \frac{dument}{dt} = \frac{dument}{dt$$

rash Secondary School rd Quarter + + the Quarter Examination Page.1 Date: 7/4/1969 Ture: 8:30 - 10:30 a.m. . square root and then the cube root, find the sixth $a^{2} - 6(a - \frac{t}{a})(a^{3} - \frac{t}{a^{3}}) + 9(a - \frac{t}{a})^{2}$ (12 marks) hand side is always equal to the right hand side a(c-a) + ab(a-b) = -(b-c)(c-a)(a-b) $: \frac{x-1}{\sqrt{x-1}} = 3 + \frac{\sqrt{x+1}}{2}$ (12 marks) denominator and then find the value of : , when $\chi = \frac{2b}{b^2+1}$ (13 marks) (1.003) 5 (tom 41°16) 2 (12 marks) ing equation for x: - 5(logx) + 2 = 0 (13 marks) Progression the first term is 3 and the common difference t the sum of 2n terms is always equal to four time (12 marks) the ratio of the 3rd term to the 6th term is 11:26 and at 4 terms is 34. Find the progression and the sum (13 marks)

rus .

mo.

Subject : Algebra
Class : 4th Year Scientific
Answer all Questions :
1. (i) By first taking the square root and then the cube root, find the sixth
root of :

$$(a^{2} - \frac{1}{a^{2}})^{2} - 6(a - \frac{1}{a})(a^{2} - \frac{1}{a^{2}}) + 9(a - \frac{1}{a})^{2}$$
. (12 marks).
(ii) Prove that the left-hand side is always equal to the right-hand side
in the following equation :
 $bc(b - c) + ca(e - a) + ab(a - b) = -(b - c)(c - a)(a - b)$.
(ii) Rationalise the denominator and then find the value of :
 $\frac{\sqrt{1 + x} + \sqrt{1 - x}}{\sqrt{1 + x} - \sqrt{1 - x}}$, when $x = \frac{2b}{b^{2} + 1}$. (12 marks).
(13 marks).
(13 marks).
(14 marks).

(ii) Solve the following equation for x :

1.

2.

3.

 $2(\log x)^2 - 5(\log x) + 2 = 0$.

- four times the sum of n terms.
 - the first 8 terms.

SHAMASH SECONDARY SCHOOL 3rd & 4th quarter Examination.

a.m.

V (1.003)⁵(tan41⁰ 16')²

(13 marks).

4. (i) In an Arithmetic Progression the first term is 3 and the common difference is 6. Show that the sum of 2n terms is always equal to (12 marks).

(ii) In an A. P. the ratio of the 3rd term to the 6th term is 11:26 and the sum of the first 4 terms is 34. Find the progression and the sum of (13 marks).

(1) Is an Arithmetic Progression the first term is 3 and the domaon't. difference is 6. Show that the sum of 2n terms is always equal to four times the sum of a terms.

(11) In an A. P. the ratio of the 3rd term to the 6th term is 11:26 and the ava of the first 4 terms in 34. Wind the progression and the sum of (13 mentes). .anvat 8 tavil adt

Solutini to Mid-year Exam., in Algebra 4th Secondary year, February, 1969. Let the time now be & minutes after 5 o'clock. then x = 25 + x + 30 (ACB = 30) $\chi = \frac{\chi}{12} = 55$:: $\frac{11\chi}{12} = 55$:: $\chi = 60$ minutes after 5 te time now is exactly 6 o'clock Ans._ (i) solve 6x3+19x+x-6=0 By trial + error we discover that x=-3 satisfis the equation . Hence by The remainder + factor theorems, (x+3) is a factor. Factoring, we get $(x+3)(6x^{2}+x-2)=0$ or (x+3)(3x+2)(2x-1)=0 $\frac{3x-7}{x-2} + \frac{2x-5}{x-3} = \frac{3x+7}{x+2} + \frac{2x+5}{x+3}$ $\frac{3(x-2)-1}{x-2} + \frac{2(x-3)+1}{x-3} = \frac{3(x+2)+1}{x+2} + \frac{2(x+3)-1}{x+3}$ $3 - \frac{1}{x-2} + 2 + \frac{1}{x-3} = 3 + \frac{1}{x+2} + 2 - \frac{1}{x+3}$ $\frac{1}{\chi_{-3}} - \frac{1}{\chi_{-2}} = \frac{1}{\chi_{+2}} - \frac{1}{\chi_{+3}} \quad \therefore \quad \frac{\chi_{-2} - \chi_{+3}}{(\chi_{-2})(\chi_{-3})} = \frac{\chi_{+3} - \chi_{-2}}{(\chi_{+2})(\chi_{+3})}$ $\frac{1}{(x-2)(x-3)} = \frac{1}{(x+2)(x+3)} \quad \therefore (x+2)(x+3) = (x-2)(x-3)$: $x^2 + 5x + \delta = x^2 - 5x + \delta$: 10x = 0 : x = 0 Ans:

: x=-37

 $\chi = \frac{1}{2}$

x = - = / Aus.

$$\begin{aligned} \left\| A \left(X - x \right) + B \left(X + y \right) + C = x \\ A X^{*} - A X + B X + y + B + C = x \\ A X^{*} - A X + B X + y + B + C = x \\ A X^{*} - A X + B X + y + B + C = x \\ A X^{*} - A X + B + Z \\ y = x \\ x + B = 2 \\ y = x \\ y = x \\ y = x \\ x + y + 2 \\ x + y \\ x + B = 2 \\ y = x \\ x + y + 2 \\ x + y \\ x + B = 2 \\ y = x \\ x + y + 2 \\ x + y \\ x + 2 \\ x + y + 2 \\ x + y \\ x + 2 \\ x$$

x+x+25 -x+25 + x + 25 . Equating Wifficients of the terms, : B-6=1 02 B=7 4x7+C=25 NC=-3 3 Aus. 0, then 4B+C=25 ... () 6B+C=12+2+25=39 ... (2) = 14 1 B=7 and C = -3 B(1+4)+C=3+1+25 or -3 = 29B=7 and c=-3 Ans. 8 D $tx^2 = 8$ from D (1.a) x=1 frm @ (2.a) $2 \frac{1+m+2m^2}{2-2m-3m^2} = \frac{8}{1}$: 26 m² + 17 m - 15 = 0 $m = \frac{1}{2}$ or $m = -\frac{15}{13}$ $x^{2} + \frac{x^{2}}{2} + \frac{x^{2}}{2} = 8 \quad M = 2x^{2} = 8$ $\chi = 2$, $\gamma = m\chi = \frac{1}{2}\chi_2 = 1$ x = -2 y $y = \frac{1}{2}(-2) = -1$ $\frac{Aus. 2}{x^{225}} = \frac{13}{x^{2}} + \frac{13}{x^{2}}$ $\left(\frac{424}{169}\right) = 8$, $\chi^2 = \frac{8 \times 169}{424} = \frac{169}{53}$ $\frac{13}{\sqrt{53}} = -\frac{15}{\sqrt{53}} \text{ and ohn } x = -\frac{13}{\sqrt{53}} \cdot y = (-\frac{15}{\sqrt{53}})(-\frac{13}{\sqrt{53}}) = \frac{15}{\sqrt{53}}$

In alternative method A Sand a strange , Etal , Elandin Million 19 2 + 2y + 2y = B: D 2x - 2xy - 5y = 10 - - - - @ multiply Egg (2) by 8 : \$ 16x-16xy-24y=8 3 Subtract The strange the HBHC = 25 mills 15x - 17xy - 26y = 0 (1-24) (15×+134) = 0____ Ener 282 14 BE The mind 2 =+3 · y= 1 x or y = - 15 x When y= 2 from lig. O: x2 + x(2) + 2(2) = 8 or x2 + 2 + 2 = 8 a he saint a firs a deg and a = - a fire. $ov = x^2 = 8 \quad i \quad x^2 = y \quad i \quad x = \pm 2 \quad i \quad y = \pm = \pm \frac{1}{2} = \pm 1$ x = 2 $y = i \int \frac{Aus.1}{y} = -i \int \frac{Aus.2}{y}$ \$1-221-39"=1 .T. . (B) When y = - 15 x from by. O: x + x (- 15x) + 2 (-15x) = 8 or x - 15 x + 450 x = 8 : 169 x - 15 x13 x + 450 x = 8 × 169 P : 169x - 195 x + 450 x = 1352 : 424 x = 1352 : x = 1352 11 + + 21 - 18 - 16 - 16 - - 24 m - 1 26 m + 19 m - 15 = 0 $x x^{2} = \frac{169}{53} + x = \pm \frac{15}{\sqrt{53}}$ when x = 13 - 3 x y = - 15 x dr y = - 15 (13) = - 15 V53 3 x y = - 15 (13) = - 15 t a break and the property of the the second second and when $x = -\frac{13}{153}$ 3 $y = -\frac{15}{18} x + y = -\frac{15}{18} \left(\frac{13}{153} \right) = \frac{15}{153}$ 1 to and to day and the - Lought = x 1 X= 13 - ++ -2 Hours at - the strained (おうぼうきんましょうかんな 二、小ないない 二、 ないろう ちょうちん

3. * Dismiller = yet + yx+"x = (1+2)(1-1x2+2-3)2. and the same all and the pre- 2 an in a second a second to a second second and for a - A LA & MY CHARLES $= \left[a^{2} + (-2b)^{2} + c^{2} - 3a(-2b)c\right] + \left[a - 2b + c\right]$ and the same state and the state of the same = (a=2b+c)(a2+4b+c+2ab-ac+2bc) + (a-2b+c) the the first for the the terminant = (a-2b+c) [[a ++b+c+2ab-ac+2be]+1] X and the set of have in the set of the set of the = (a-2b+c) (a+++b++++ + 2ab - ac+2bc+1) Ans. my the property of the set as a sing of the property of the pr 5. after the first replacement, there are 2 gall of Brandy in Cask P and The start i save a save a granter of (50-x)gell " " " " " at the set of the set At the beginning of the 2nd operation : (x goel . of Brandy are removed from cast P and x (50 - 2) gall were the to a start ways of a start the to the to the $: \left(\frac{x}{2} - \frac{x^{+}}{360}\right) + \frac{\frac{x^{+}}{300} + \frac{x(50 - \frac{x}{2})}{50}}{2} = 17$ the x - Vit and - Shire at 1 - 12 m and a gastath trates & hit The second of th x 3x² - 400 x + 6800=0 x (3x-340)(x-20)=0 : x = ========== inadmissible - in the partition of the second X = 20 gallous Ans.

= (2+1)+ (1+1)= (2+2)-3(x+文)+(++)-3(1+) $= a^{3} + b^{3} + b^{3} = a^{3} + b^{3} - 3(a + b)$ = (a+b)(a*-ab+b*-3) Ams. 1 = (3) (1-2+4-3) = 3 × zero = 0 Ans. 2 (ii) a + a - 8b - 2b + c + 6 abc + c = a - 8b + c + 6 abc + a - 2b + c water Brandy Mixture Brandy 100 $\frac{x}{2}$ gall, $2 = \frac{x \cdot \frac{x}{2}}{100}$ $x = \frac{x^2}{200}$ gall. 50 gall. (50- 2)gall. 2= x (50-2) x . ? ? 50) x= + x(50-x) 30 gall. I brandy are deposited in P after 2nd replacement. $\frac{100x - x^2}{200} + \frac{x^2 + 4x(50 - \frac{x}{2})}{200} = 17 \quad \frac{100x - x^2}{200} + \frac{x + 200x - 2x^2}{200} = 17$ $\frac{100 \times - \times^{2}}{200 \times - \times^{2}} + \frac{200 \times - \times^{2}}{400} = 17 \quad \therefore \quad 200 \times - 2 \times^{2} + 200 \times - \times^{2} = 6800$

12-YM - THYXI

+ 20 -

speed " " B = 15 milk. = 15 x 22 ftpec (i) where the two trains are travellip in appointe directions (See Fig. I), painto cand D Han 240ft are reparating at the rate of (33+22) flee = 55 there. Where the rear cars A and & just clear away from each other, (see Fig. II) points & and D have already separated by a distance

= (240+200) ft = 440 ft. Obietaken = total distance = 4460 = 8 sec. Ans. [Total separation = 55 = 8 sec. Ans.] (ii) When the two trains are travelling in the same direction, (See Fig. III), prints Cand D we separating at the rate of (33-22) Here = 11 ft here . When the rear Car A of the faster train and the front car D of the slower train just clear away from each other, (see Fig. I), points C and D have already reparated by a distance of 240ft which he is the brigth of the faster train .

. time taken = distance = 240 = 21 3 See. Ans. 2

Speed of train A = 22.5 mill = 22.5 X 22 If face = 2 2 2 = 33 ft face. = 22 ft/acc. v; = 33 Have Fig. I 3 --m.B F.g.I A = 240ft = soft/are B = 200 H = 2 Maple Fig. II 240 ft E 200ft Fig. IV

SHAMASH SECONDARY SCHOOL Mid-Year Examination, February, 1969.

Subject : Algebra Class : 4th Year, Secondary

Educat of their A = 225 million 2005 x 22 flace - 4 100 - 23 th

B = 15 million a 18 x 25 Harr

I have a string (ming) which a sund 3

are already expanded by a distance

) is takin = total distant = 000 = 8 too. And

a hund divide the for the find and a

time taken = abetatame = 200 - 31 2 mais Ans. 2

iden the reactor of I to last rain

= (240+204) H= works.

I spit

applicant though

IL .m

FOR

Five questions only are to be attempted.

. sn . kt The time now is x minutes after five and the two hands of the watch stand in a straight line on opposite sides of the centre of the dial of the (20 marks) watch. Find x and state, in words, the correct time.

2. (i) Find the value of x from the following equation :

(10 marks)

 $6 x^{3} + 19 x^{2} + x - 6 = 0.$ (ii) Solve the following equation, using the shortest possible method, by first reducing each fraction to a simpler form :

 $\frac{3x-7}{x-2} + \frac{2x-5}{x-3} = \frac{3x+7}{x+2} + \frac{2x+5}{x+3}$

3. (i) In the following equation, A. B, and C are constants and the A equation is true for all values of x. Find the values of A, B and C. $A(x^2 - 2x) + B(x + 4) + C = 3x^2 + x + 25.$ (10 marks) (ii) Solve the following equations simultaneously :

 $x^{2} + xy + 2y^{2} = 8$ (1) $2x^{2} - 2xy - 3y^{2} = 1$ (2)

value of

(ii) Resolve the expression $a^3 + a - b^3 - 2b + c + babc + c^3$ into two factors one of which is (a - 2b + c). (10 marks)

A cask P is filled with 100 gallons of water, and a cask Q with 5. 50 gallons of brandy; x gallons are drawn from each cask, mixed and replaced; and the same operation is repeated. Find x when there are 17 gallons of (20 marks) brandy in P after the second replacement.

Two trains A and B are travelling on two railway tracks which are 6. parallel to each other. Train A is 240 ft long and it is travelling at 22.5 miles per hour. Train B is 200 ft long and is travelling at the rate 15 miles per hour. Find the length of time in seconds from the instant when the head of the front cars of the two trains are together, to the instant when the

Date : 17/2/1969. Time : 8:30-11:30 a.m.

two trains just clear

(10 marks)

(10 marks)

4. (i) If $x + \frac{1}{x} = a$ and $y + \frac{1}{y} = b$, find the value of the expression $(\frac{3}{x} + y^3 + \frac{1}{3} + \frac{1}{3})$ in terms of "a" and "b", Hence or otherwise find the $(x^3 + y^3 + \frac{1}{3} + \frac{1}{3})$ if a = 1 and b = 2. (10 marks)

P.T.D

'Mid-Year Exam. Cont., in Algebra ; 4th Year, Secondary, 17/2/1969.

12/2/1969.

(azizen 01)

two trains just clear away from each other in the two cases : (i) When the two trains are travelling in opposite directions. (ii) when the two trains are travelling in the same direction. (20 marks). (astrony dS) toh. Find x and state, in words, the correct time.

2. (1) Find the value of x from the following equation :

 $\frac{5x+2}{x+3} + \frac{2x+5}{x+3} = \frac{5x+7}{x+2} + \frac{2x+5}{x+3}.$

(astron of) 6 x + 19 x + x + 6 = 0 (11) Bolve the following equation, using the shortnet possible method, by first reducing each frection to a simpler form to ?

3. (4) In the following equation, A. B. and C are constants and the equation is true for all values of x. Find the values of A. E and G.

 $A(x_{e}^{e} = zx) + B(x + 4) + C = 3x^{e} + x + 25$. (11) Solve the following equations staultaneously :

tabayars out to make that , f = --- + y bas a = --- + x 11 (1) .+ "* + " + " + to terms of "n" and "b", Honce or otherwise find the (x + y + --- +) If a = 1 and b = 2.

(11) Resolve the expression $a^2 + a = 2b^2 - 2b + c + babc + c^2$ into the factors one of which is (a - 2b + c).

5. . . . suck 2 is filled with 100 mallons of water, and s cack Q with 50 callens of brandy: x rallons are drawn from andh cost, mixed and replaced; and the mame operation is repeated. Find x when there are 17 gallons of

ove dotily adopt weather on to gatily at a but a suiter of persided to each other. Train a is 240 ft long and it is breveliker at 22.5 willow our hour. Train 2 is 200 ft least and is traveline at the rate 15 miles pur hour. Mind the longth of time in accords from the instant when the board of the front cate of the two brains are tonethar, to the instant shaw the

2(8+2A+B)-4=0 · 4/1+2/3 = -12 02 2H+B=-6 ---

+ 3x2+

x -z=

3× -2× + ×

x - - + + 2 × -

(4+A+) x+ Bx-4

2(4+H)+B x-4

(8+1A+B) x - 2(8+2A+B)

Seliction to Algebra Exam. (2nd quelle) + 7/2/1769 (x2-4 - (x+2)(x+2) 1. 21+Ax+Bx-4 1X-2 12x2+(4+H) X+(8+2H+13) ×+2 12× +4× ZXAA (++11) x = 2 (4+A) x [(4+A) -4, x + 8+2A+8 02 HX+2R+8+8+8 かんキマカ - 15-11 B+8=0 --- 12 from 2A-8=-6 if H=1 Ams. al withe ramaing factor is the last quotient, namely : 2x+H or the state and the state of the an alternative method; He facture & 4 are (x-e) 4 (x+2), By the " a contrainder to oran , when x = ? the expression 2x + 7x + 8x - 4 becomes - in also when X = - 2, then 2(-2) + 4H - 2B - 4 = 0 + 4H - 2B = 20 : 2H - B = 10 + 11/2 : 2x + x - 8x - 4 = (x - 4) (2x + 1) = (2x + 1) is the maining factor that. according to describer form Ext of Carronge is the square root is ; 3x3-x= + = = = x + + x - sx3 - - -=x=x7x=3 Ams. + 5x - 3x + = x says- wire and AT XY + XY + XY + XY + XY + 104 (K+ 1) (K+ Day) (+/1) (K+1) 363"+5"- 20 . (200 - -22/ 1233

had in to filler some (a stop 3. (1) $4(x^{2}+1) + 2(x+3) = 2 + 2x(4+2x)$ $\mathcal{F}(b) \times (b_{X+1}) = 2_{X+1}$ at a land and the there and the state La constanting a constant a constant Prop 12, 12 (c) x(x+2) = 2(x-2)6 simplefying (a), in it: 4x + 4+2x+6 = 2+2x+4x + +2 4x +2x + 2 = 4x +2x+2 (alongo ting bing out 84 = 0 annya 8 famlb): 6x + x = 2x+1 = 6x + x - 1 = 0 m 0 = Y-Lather (3x+1)(2x-1)=0 = x=-3 and x= 1 (and it is a and the online of the me the - + 3 Hour. 6 male): in the as plan in the set guilting and a state of guilt at A son x+2x = 3 x - 4 ... or x= -4 (wentere, x things again and the transferrent to the first Ward ALL AND . (in alternation illedy the factor of a to a (are), by the 4 (1) I + f + f = 2 2 in a D printing light by 2 a caling with y Dowest. H and How we that and the set of the set of the the former and the set of the こ それないなるころがって ビアルをナガモンをアメークレー ひし いいい a stranger and the second of all and a second as = = 5 + 2 = 2 for a fl = 2 = 2 = 1 for a f and as a set of the se (Inthe a start for an allotte and to be berg inter brand brand of the to the · == == == == (+ = for 1) will flying 177 = = + == 17 = 10 and and a month atte dee need a fat the) (the at - the stand at the in the same mines to the stand and and and the Q = 2 from & = 1 = 51 + 2 = 2 + x =1 Constant test state bert for an of a set send a fait a first of the station of the station tur (1, 1 + 1 + 1 + 1 = + 1 = + = 1 = 1 = 1 = 3 = 3 1 2x x 7 how men the way the set All and a second ** X=17 you & Ansa 8=3.4. -1 (20 -1-1-1-1-1-1 State and the staticate and the state (i) x+ =-1 . H = - It = - x+y+y=-xy=. #x+y EN TO THE CA * Xy+y =/ Mas. == / //45.

ł The wey have the properties and the second of the second Hater ist and will A YAXAAL SHARASANA ST. M. (M) & 18-B) Col - B) at which is an an an all all and an mathele 6x 6x - 2x - 2 - 1 = 2 = 2 = 2 = 2 or salka a we have a doubt for and the day was - of the fame in A 20x a Hoter a the the the same and a second the same 4 (1) 4 + (1) 4 (1) + (1) - (1) - (1) + (1) + (1) + (1) + - the profile and a set of the and a low profile of and the second of the second for the Susta for the for the stand for the formation of the state of the stat to any the first der and a first and an a first and and and a first and a S=K M - quiting any a get state of a baby *** 1-2 + (1) $= \frac{y \in y^{n+x^{n}-xy}}{x (x^{n}+x)} \cdot \frac{(x^{n}y)}{x (x^{n}y)} = \frac{y (x^{n}y) (x^{$ =/ these low

5. Let the certain ever formous the to X = 20 X shillings a 1 Chang Coffic costs = 1 x stillings a 1 lo a headed for (20x+c) shillings or 20HX = 20X(H-B) + AC(A-B) or ~ 20x [= (H-G)] = AC(A-B) ~~ Mul + - property and to the stand of the stand of the second and the to the state where and 4 1 = 2 Arrest Billions 13 3+ 1- MA

(A-B) the of liftle he sold for (A-B) (20x+c) shillings · 20 x = (A-B) (= +c) or 20 Ax = (H-B) (20 x + HC) 02 20AX-20(A-6)X = AC(A-B) 20BX = AC(A-B) $\therefore X = \frac{fAC(A-B)}{20B}$ fins. (county a to a state of the second a state of the st

5. Let the restrict and for the first and the second of the second (iii) Find x if ax+y=+ and 34+14 =6x (DE DE TATEL STATE L'A DE TATELLA DE LA DE TATELLA DE LA DE or sate = so 14 3) + AC(4-0) or A ZOX MARTER CA BUT ACCA BUT AND XOS A TT : as ex notes . A might have how is 20 Last a gal gal . T. Find the square root of: 1 1 1 1 1 E = V A and a second and the second and a second and a second and the seco a superiore and a training the second the second the second to

Make up Exam. and Quarter which had de (6 marks (i) Final the walme of x = + when x = - = = y = -3 (7 morto) (ii) Solve the equation of + 2-6=1 (7 marks) It (i) If t = 1 = 243 , find & in terms & x, y and to (10 marks) (ii) If F= and - be and if F= 4 when v = 5 and F= 36 when i = 10, find the plus of "a" and "b" and the value of F when we are (10 marks) a man can eyele at x m.p.h. in still air. His speed increases y m.p.h. where he eyels with the wind, and decreases y m.p.h. when he cycles against the wind . The difference in his time to cycle one mile with the wind and one mile against the wind is ghours. Find a formula for g in terms of x and y, and find x if y=2, g= 4. It. In how many days will a horses eat it the of the corn of a field the whole of which can be eaten by "b" horses in "days. (20 marks) 16x+16xy+8x+ +y++ showing your steps neatly.

SHAMASH SECONDARY SCHOOL

Subject: Algebra Class : 4th Year Secondary

Attempt all questions:

1. Find thevalues of A and B and find the remaining factor.

Find the square root of: 2.

E

 $4x^4 - 3x^5 - 3x^3 + \frac{9}{1}x^6 + \frac{5}{1}x^2 - \frac{2}{3}$

Which of the following equations is always true, which is sometimes 3. true and which is never true? Find the values of x which satisfy the equation which is sometimes true.

- (a) $4(x^2-1) + 2(x + 3) = 2 + 2x(1 + 2x)$
- (b) x(6x + 1) = 2x + 1(c) x(x + 2) = 2(x - 2)

4. 1 1 ху

> y

(ii) Bimplify the following expression to simplest form:

 $\frac{x}{y} + \frac{y}{x} - 1 = 1 + \frac{y}{x} + \frac{y}{x} + 1 = \frac{1 + \frac{y}{x}}{x - y} + \frac{1 + \frac{y^3}{x^3}}{\frac{x^2}{x^2} + \frac{x}{y} + 1} = \frac{1 + \frac{y^3}{x^3}}{\frac{x^2}{x^2} - \frac{y^2}{x^3}}$

A man bought "A" lbs of coffee for a certain sum of money. He 5. kept"B" lbs to himself and sold the remainder at "C" shillings a pound

more than he paid for it. He found that he received for this pertion an amount equal to the original sum of money which he paid for the whole. Find the original sum of money which he paid for the whole. (20 marks)

interpret sales (in) ana to to the made to all when

10" Hand the walk of

"I" with also IF in mane

a man can each it & mark. ind , the differences is mint a many days will a barren and fatt of the some statiched the whale of a view be water by a horas in a dam

「ストレスタキのスキティーショーディー

piter softe ning

alaw 22)

and and a

Date: 7/1/1969 Time: 10:15-11:45

The expression 2 x^3 + Ax² + Bx - 4 is exactly divisible by x^2 -4. (20 marks)

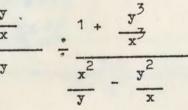
$$x + \frac{1}{9}$$
°

(20 marks)

(20 marks)

(i) Solve simultaneously the following equations:

----- = 2½ ·······(1)



(20 marks)

BRAMASH SECONDARY - SCHOOL

Date: 7/1/1969 24:17-21:07 :smith

4 234 inclosed all questions:

subject: Algebra

Class . : 4th Year Secondary

Find theyelves of A and B and Man the weedhing factor.

toor-snappe ad bawing - .S

which of the following equations is always inter it as a start - To said which is never true? That the values of x quation which is sometimes true. 1000

annen anne anne 18 31 - -

+ = ((= *)) + = (=) = $\mathbf{x}(b) = \mathbf{x}(bx + 1) = \mathbf{x} + \mathbf{x}$ (c) v(x + 2)

ATE (1+ 22) = (1+ 2+) (+2+) = +== 2 - 2 + 2 + 2 (4) Bolve simultaneously the following equations:

(20 matten) a

A man boucht "A" the of coffee for a certain sum of money. Bo Rept"B" the to himself and sold the reacheder at "0" shillings a more than he paid for it. He found that he received for this critics on amount equal to the original sum of money which he paid for the whole. Find the original sum of money which he paid for the whole. (So marke)

Subject: Algebra Class : 4th Year Secondary

Attempt all questions:

1.

Find the square root of: 2.

 $4x^{4}-3x^{5}-3x^{3}+$

3.

4.

Which of the following equations is always true, which is sometimes true and which is never true? Find the values of x which satisfy the equation which is sometimes true.

(a) $4(x^2-1) + 2(x + 3) = 2 + 2x(1 + 2x)$ (b) x(6x + 1) = 2x + 1(c) x(x + 2) = 2(x - 2)

(i) Solve simultaneously the following equations: 3 x y $\frac{2}{x} + \frac{4}{y} - \frac{6}{z} = 2$ $\frac{5}{\sqrt{1+\frac{7}{2}}} = 2$

(ii) Bimplify the following expression to simplest form:

5. A man bought "A" lbs of coffee for a certain sum of money. He kept"B" lbs to himself and sold the remainder at "C" shillings a pound more than he paid for it. He found that he received for this portion an amount equal to the original sum of money which he paid for the whole. Find the original sum of money which he paid for the whole. (20 marks)

SHAMASH SECONDARY SCHOOL

Date: 7/1/1969 Time: 10:15-11:45

The expression 2 x^{3} + Ax² + Bx - 4 is exactly divisible by x^{2} -4. Find thevalues of A and B and find the remaining factor. (20 marks)

$$\frac{2}{3} + \frac{1}{2}$$

(20 marks)

(20 marks)

$$\frac{1+\frac{y}{x}}{x-y} \stackrel{1}{\xrightarrow{}} \frac{1+\frac{y^3}{x^2}}{\frac{x^2}{y} - \frac{y^2}{x}}$$

(20 marks)

LOOHDE TRACHOOTE HEAMARE

Date: 7/1/1969

Subject: Algebra Clase : 4th Year Secondery

Attemp II. Junetta

The expression 2 x + Ax + Ex - + is exactly divisible, by

Find there of A and B and find the revalution factor.

antionos at doite, auti evenia is anotions in which is sometime and which never true? Find the values of x which estinfy the the which is sometimes true.

Solve simultaneously the following equations:

Bingilfy the following expression , to simplest form:

ming a manifilita "O" is rebalener and sold the remainder at "C" abilitance a point torse that he puls for its, Se found that he received for this perti-

weight event to the orthand sum of money which he paid i

Subject: General Mathematics Class : 4th Year Secondary

Give the English Equivalent of the followinh, filling the blanks in 1. this sheet and hand it over with your examination book.

Numerala = figures Digits subtraction Factor The index of exponent of the powe Multiple Consecutive even numbers " odd " The integral part of a number Prime members The least common Denomina Ches inproper fraction The reciprocal of a number Terminating decimals Ecurring of Repeating decenne The percentage error Ratis + Proportion The mean proportional between The Dividend Nion Postulate an gente angle an obtuse is a Replex 11 a segment of a circle a sector " " " The Data The untenound Two Complementary and Suppo amentan an equilalizat polygon coseles triane Chomler The news The second to a circle he removal + insertion

Transporting from one side gangene Indon tite gareguali - 23

SHAMASH SECONDARY SCHOOL

الرقم: 18 mg:

Nonthly Examination, November 1968

Date: 18/11/1968. Time: 8:30 - 10:00 a.m.

	۱ – ارقام	100	Nik
	۲ مراتب	The	W.
	٣- الطن		4
L. L	ع الموامل		1
× 5	ه_ اسالقو		4
and the second	- مضاعف	1	-
زوجية متثالية	γ_ اعداد	1	4
فردية متتالية	٨_ اعداد	1.	ų
لصحيح من المدد	ه_ الجز"		4
اولية	۱- اعداد		4
لمشترك الاصغر للمشترك	ا_ المقام ا	11	4
لى	۱_ کسر لغظ	17	11
	ا _ مقلوب ا		"
العشرية المنتهية			11
المشرية للبيورية -			. 11
	الخطا		11
	- النسبة	Y	n
المتناسب بين عددين مساسس م	- الوسط	1.	4
ساهم (ربيح حامل الاسبهم)	ا_ رہے الم	19	61
	ا_ البديم	۲.	11
	_ الموضوع	51	-
اں ۃ	ا_ زاوية حا	٢٢	11
فرجة	ا زاوية منا	۲۳ -	h
مكسة	ا_ زاوية من	55	11
ا عرة	- قطمة -	50	1
and an	_ قطاعدا	And the second second	ŋ. '
	_ المعالي		H
	- المجاهم	Contraction of the second	1
	_ زاویتان		4
and the second se	زاویتان	and a set of the set of the set	. 11
ساوى الاضلاع	a constant when to set to set a set of		10
باوى الساقين			4
in Car	- المعين		11
	المحل ا		4
القاطح للداقرة			-
. خال الأقواس Afraetet	A HARD BAR AND A DESCRIPTION A	· · · ·	n
ود المعادلة من جمة الى الجمة الأخرى			4
	- متطابقة		9
	ا_ متباينة	4 5	17

Ilaëg: SHAMASH SECONDARY SCHOOL 18 mg: Sonthly Examination, November 1968 Date: 18/11/1968. Subject: General Mathematics .Time: 8:30 - 10:00 a.m. Olass : 4th Year Secondary Give the English Equivalent of the followinh. filling the blanks in this sheet and hand it ever with your examination book. 1 1- 1,39 alling the statement 1 - alin a hundride to a in another wind an your Hed 3- Ilaplat An Ditted on la lles Fine addition N- les la jener alles that each thought will بر اعداد فرد بة متتالية and and . - Ilai llaway ai llass . Station as a mark of a secondary · fin laste late 1 1 - Theil & Phoning & 16 andre 7 1 - Eng Liely 71 - selow that ash has to 3 1 - Illing Many i Haimant Bally lite to B 6 (- thence the saw the ger. F 1 - Elizal Thates Yra Henry plasting A :- Thend that any sois all have HUSE BARRE 1- up thank og (up al al 1K magg) · P I have young it 1 Tom. They ages YY m dessales 17m ilevé milyané 3 Kin ilgisiaintus 07 - Edns 4125 a signification to the tenter that the TY- Ediguités antia a salar a a Yr- Ilwallyg de To NY- Magland the led with and ent. ٢٠ زاريتان متامتان 1 114 0 • ٢- - الفيتان معلمان The string and feel & sall of 7 7 - allow and the their and and 4 You Thanking 3 Your House Hiciter way , o you they that it by the states and the states and the FT- Illigical Refa ٢٦- تقل حدود المعتادية من عنبة الى الجمعة الأعرد Ay and is 7 - and is Rud toton nna state - -

A houseneous algebraic expression The degree or the dimension) an algebraic The fitteral coefficient on a guildratic ton you reuning and derimination cases a remainder The perpendicular bisectors of the sides of a triangle meet at the centre of the circumscribed circle. The medians of a triange is not a list of a consider of a median of a triange meet at a point which divides each of them too thirds from the verter and one third from the head of the certification of a triangle . 140-(75 marks)

(II)	Fil	l in	the blanks in the follow:
(2.5 mark	3)7.	one	furling = (10) cl
	2.	one	chain = (22) ya
4	3.	one	statute mile = (176
4,	4.	one	nautical mile = () (60
	5.	one	sq. chain = (U.Su
M			acre =(10) so
- 9	7.	one	gallon = (8
4	8.	one	bushel = (<u>?</u>) ga
	9.	one	English ton = (2240)
4	10.	one	English ton = (20
		F	quarter = 1/4 of one cut tone = 14 lbs
		1	E. illes
~		118	have = 14
		Carries	

الرقم: الاسم: ا . ۱ . ۲ مقد (و. جبری متجانس (٤- درجة المقدار الجبرى maressin ٢٢ - المعلمات الحرفي ۲ مقدار جبرى من الدرجة الثانية... ع ع _ ان حدى الكسر هما بسطه ومقامه ٢ ٢٦ ١١ الخطوط المتوسطة في المثلث تلتقى في نقطة واحدة تقسم كلا منها الى ثلثين من جهة الرام • ٢٨ - نقيس طول مستقيم فنجد انه يساوى در ٢ سم . ثم نجد فيما بعد أن طوله المضبوط . ٢ سم. وفي هذه الحالة نقول أن الخطأ المطلق هو we measure the length gast line + we find that it is up a low. be then find that the measure the length gast line + we find that it is up a low on the then find that its exact length is so cons. In this case we say that the absolute error is 1.5 cm, the relativeer is 40 مسما ٢٩ - ان قيمة المقدار ٢٢ر٩٠٣٥ لاقرب اربعة ارقام معنوية هي · (/: في منه المقد ار ٢٢ منه المعنونة الم The equation 3x - 2xy +y = 5 2 is a quadratic equation in the unknown ing equations:hains= () mile ards = (10-0) links) jds. = (5280)ft. 0) ft. 20) sq. yds. q. ch. = (4840) sq. yds.) pints

allons = (4) pecks 2) 1bs. ---- (1016) kilograms) cwt. = $(\frac{90}{90})$ gr. = $(\frac{160}{50})$ stones.

= 28 lbs = 2 stris

(25 marks).

14Eg: 18 mg:

·) - all (o see and we annalis analista and 13 in Lever Hath I Roging 2 73 - Healds Harley 7) - مقد ار جبرى من الد رجة الثاثية -33- 10 ac 2 12mg and unde gott a

man Yam

و ي في كل ملية تسعة يوجد متسور ومقسور عليه ونافي قسنة وفي معنى المعلا صباق للقسة .

٢٦٠٠ ان الاصدة المنصفة لا خلاع مثلث طعتي في مركز الداكرة المرسومة . ٢٠٠٠ the propendarialan trisestories the side of the ing the man of the centre . I are main a main a line of the

Y 3 - 1 1 المتحلوط المتوسطة في المثلث تلتقي في نتداة واحدة تقسم كلا منها الن ثلثين من جمعة ا ella no mas llelar à perma di o lliedà a de tel lladia. where and one thing from the very . Aling which is the countral & the Warners .

13- is del materia inte lis unles allong. a inte and the his date there " . Two. وفي هذه المالة نقول ان المدا المحالق هو .

61.5 Corner 100 the child in hilling the relation of the ٢٩ - ١٠ تيمة المقدار ٢٧ر٢٠٧ ٥ لا قرب المحة ارقام مختوعة ٥٠ there it come · on li lladele you your to a ogn ugan adele i lle it i contente in is equadrate quate interpreten

· the refered and a state

(25 marke).

(25 marks)

1.5 Mar

d

1 14 * .

*

Fill in the blanks in the following equations:-(II)

		a second s	A CONTRACT MANY AND A CONTRACT OF		
	elim (nt.) chaine= (furling = (0	ono . P.
-) links	10-11) yards = (chain = (22	2. one
- 1	80)rt.	7de. = (52	1760 3	statute mile = (5. one
	Approximation of the second) ft.	080280	neutical mile = (4: one
		7 sq. yds.) = misdo :pa	5. 000
- Ar	.aby .pa (0 484 3	= .do .pa (acro =(6, one
) pintė	gallon = (7* OB6
) pecka*	. 4)) gallons =	bushel = (8. one
) kilograms	They are	.ad1 (0 00 0	English ton = (9. one
	.= (/ () stones.	= (🔗) =	.20 -) ewt.	English ton = (10. one
	a man de la companya		- N		

SHAMASH SECONDARY SCHOOL

Subject: General Mathematics Class : 4th Year Secondary

Give the English Equivalent of the followinh, filling the blanks in 1. this sheet and hand it over with your examination book.

- 2 -

الرقم:

18 00:

Nonthly Examination, November 1968

Date: 18/11/1968. Time: 8:30 - 10:00 a.m.

۱ – ارقام
۲ مراتب
٣- الطن
٤ - الموامل
هـ اسالقوة
<u></u>
γ_ اعداد زوجية متتالية
٨_ اعداد فردية متتالية
٩- الجز الصحيح من المدد
، (_ اعداد اولية
١١ - المقام المشترك الأصغير
۱۲ کسر لفظی
١٣ مقلوب المدد
٤ - الكسور المشرية المنتهية
٥١- المكسور المشرية المعبورية
11- الخطا المئوى
٢ ١٦ النسبة والتناسب
٨١- الوسط المتناسب بين عددين
١٢ - ٢٦ المساهم (٢٢ حامل الاسهم)
، ٦- البديبية
٢١ - الموضوعة
۲۲ زاویة حادة
٢٣ زاوية منفرجة
٢٢ زاوية منعكسة
٥٢- قطعة دائرة
۲٦ قطاع دائرة
۲۷ - المعاليم
۲۸ - المجاهيل
۲۹ ـ زاویتان متتامتان
. ۲۰ ـــ راویتان متکاملتان
۲۱ مضلع متساوى الاضلاع
۲۱ مثلث متساوی ۱۱ طرع
۲ (م منت مساوی (سالین ۳۳ مین
٢٢ - ٢٠ المعين ٢٢ - المحل الهند سي
ه ٢- المستقيم القاطع للدائرة
ة ٢- المستقيم الفاطع للداترة ٢٦- ازالة وادخال الاقواس
۲۷ نقل حدود المعادلة من جمة الى الجمة الاخر ۳۸ متطابقة
۲۸ متحابقه ۲۵ متباينة
۲٬۱ منباینه

11227: <u>100H3</u>	SHAMASH SECONDARY SC	1
IV .		
<u>Date: 18/11/1968.</u>	Youthly Examination,	
	Subject: General Mathematics	1
Time: 8:30 - 10:00 a.m.	Glass : 4th Year Secondary	
at affected and a stress data area		
	1. Give the English Equivalent of the	
*YOOG HOTSENITEEXS IN	this sheet and hand it over with yo	
(- 1,0,		
7- alter		
y- 140		
3- Projet		-
on la llage		
For allow	an na anna an anna an anna an anna an an	
Y- let le jenes milles		ناتج قسمة وفي بعض الحالات باق للقسمة .
به الجداد فردية متتالية		
Pie Higi Harry a Have	and the second s	ركز الدائرة المرسومة
· 1- laste letas	and the second	
11- That gettering to 18 and		-
7 1 - Zung Leel .		
Y1- sterillare		نقطة واحدة تقسم كلا منها الى ثلثين من جهة الراس
3 (- Illonge Harring & Harrings		مركز ثقل المثلث.
0 (- Illange Manager Illinger		
r 1- Ilisel Ilises		
Y from this and Stand survey		م. ثم نجد فيما بحد ان طوله المضبوك . ٦ سم.
A 1- I level ! lated way you at the		
? In us thanking (us ald though)	and the second term of the second	و
· Y That wy at		
17- Thegingan	();	10
٢٧- زارية حادة	and the second sec	قام مصنوية هي
77- iles decis		
3 7 - U cut der turt		ع هي مصادلة من الدرجة في مصادلة من الدرجة
or Edas clas		
ry- Edizilas		(75 marks)
Yy - Harling		
17- llogt al		(II) Fill in the blanks in the following
? ಇ _ ಲೇಖ್ ಎ ಎದ ವಿ ಲ		1. one furling = () ch
• ۳ــــزا ويتان متكاملتان		2. one chain = () ya:
17 - windy wind at 18 ally		3. one statute mile = (
٢٧- مثلث متساوى الساقين		4. one nautical mile = (
77- 1longi		5. one sq. chain = (
3 y - March Marie my		6. one acre $=()$ sq
ه ٧- المستقيم المقاطئ للد اعرة		7. Jue gallon = ()
「一」「きにきにとしてきた。	in the second	8. one bushel = () ga
	"IV	9. one English ton = (
٢٧ حدود المعادلة من بصبة الى الجبة	(Contraction of the second seco). One English ton - (
۲۷ من تقل حدود المعادلة من يعيمة الى الجيئة ۲۷ من مقطابيقة		10. one English ton = (

sq. ch. = () sq. yds.) pints gallons = () pecks) lbs. () kilograms) cwt. = () qr. = () stones.

1--

Ilien: 18 mg:

•) --- مالد إن جمعوى مشجا تس 13- درجة المقدار الجبرى 73- Harle Place ٢٢ مقدار جبوى من الد رجة الثانية-33- 10 == viller and much color

ه ٢- في كل مبلية قسمة يوجد متسوم ومقسوم عليه وناجع قسمة وفي بعار المعالات باق للقسمة .

ma Year

٢٦- ١ن الاصل ة المنصفة لا ضلاع مثلث طنتني في مركز الد اثرة المرسومة

٢٢ - ان الخطوط المتوسطة في المثلث طنتي في تقطة واحدة تتمم كلا منها التي ثلثين من جهة الراس وثلث من جمعة القاعدة. وتسمر هذه النقطة مركز على المثلث.

A3- invold ming inch lis unles allong. in into ind the lis dela llate ". rung. وني هذه المالة نقول ان النداأ المطلق هو والنطأ المقوى هو ...

٢٦ ان قيمة المقدار ٢٧٢، ٢٥ لا قرب اربعة ارقام معنوية هو

. - ان المعادلة ٢٠٠٠ ٢٠٠٠ + ٥٠ = ٥٥ - ٥٩ هو معادلة من الدرجة في melade.

(75 marks)

(II)

60

	following equations:-	the blanks in the	at I	注意
elim () chaine= (furling = (one	٦.
) links) = abray (chain = (one	.s
stre.) = .al-	statute mile = (one	3.
) rt.	nautical sile = (one	i+.
	apr "ba (sq. chain = (one	5.
, sde. yda.) = .do .pa ()= 910s	one	6.
) pinta	gallon = (ouro.	« §
) pecks) gallons = (bushel = (one	.8
) Milograms) 1bs. 10-(English ton = (one	.e
) qr. = () stones.) = .jwo (English ton = (one.	.0r

SHAMASH SECONDARY SCHOOL

Subject	:	Gene	eral N	lathematics	
Class	:	4th	Year	Secondary	

- - -

1. Give the English Equivalent of the followinh, filling the blanks in this sheet and hand it over with your examination book.

Nonthly Examination, November 1968

Date: 18/11/1968. Time: 8:30 - 10:00 a.m.

الرقم:

18 001:

۱ – ارقام
۲ مراتب
٣_ الطن
ع الموامل
ه_ اس القوة
7_ مضاعف
γ_ اعداد زوجية متتالية
٨_ اعداد فردية متتالية
٩- الجزا الصحيح من العدد
. ۱ _ اعداد اولية
١١ ـ المقاع المشترك الأصفير
۱۳ کسر لفظی
١٣ مقلوب العدد
٤]]] الكسور المشرية المنتهية
٥ (- الكسور المشرية العورية
٢ ١- الخطأ المئوى
۲ النسبة والتناسب
۸۱ _ الوسط المتناسب بين عددين
٩ - ريح المساهم (ريح حامل الاسهم)
. ٢- البديهية
٢١ - الموضوعة
۲۲ زاویة حادة
۲۳ زاویة منفرجة
٢٤ زاوية منمكسة
٢٥ _ قطمة دائرة
٢٦ قطاع د انثرة
۲۷ المعاليم
۲۸ - المجاهيل
۲۹ زاویتان متتامتان
۲۰
۱۳ مضلع متساوى الاضلاع
۲ ۲ مثلث متساوى الساقين ۲ ۲ - مثلث متساوى الساقين
۲ ۲۱ منت مساوی اسا میں ۳۳ المعین
٢٢ - ٢ - ٢ - ٢ - ٢ - ٢ - ٢ - ٢ - ٢ - ٢
م ٣ - المعلم القاطع للدائرة ٣٥ - المستقيم القاطع للدائرة
٣٦ - ازالة وادخال الاقواس بسينقل جابيا المالية محقال المقالان
٣٧ ــــــــــــــــــــــــــــــــــــ
۲۸ متطابقة
۲۹ متباینة

	12	Berger
Her SCHOOL ARY SCHOOL	SHAMABH SECOND	
tion. November 1968 : F 31	Sonthly Examina	
Date: 18/11/1968.	Subject: General Mathematice	
Time: 8:30 - 10:00 a.m.	Class : 4th Tear Secondary	
	 dive the English Equivalent of this sheet and hand it over wi 	
(- 1, ig		تج قسمة وفي بعض الحالات باق للقسمة .
y- Helo		-
3- 16-eld		ز الدائرة المرسومة
0- 1- 1 LEes		
s - se les		
V- Teute (cross and Las		
ر اعداد فردية متثالية		طة واحدة تقسم كلا منها الى ثلثين من جهة الل
- Their thanks and that		ركز ثقل المثلث.
- 1- laule letas		
11 - Thilly Thomas & I'd aring		
7 1 mm Twee lied a		. ثم نجد فيما بحد ان طوله المضبوط . ٦ سم .
Y 1- alley that is		
3 (- 112mgg 1 haven 1 haven 3		والخطأ المئوى هو
01 - Homey Home Hinger		
ri- Ilizeli Ilizez		م مصنوبة هي
V 1- I lima d'al any		
A 1 - the west floated way age at to so		هي معادلة من الدرجة في
2 (m us Handay (us alab 18 mgg)		
· 7 1 hat segue		(75 marks)
77- il cur al 25	and a second	
٧ ٧ زارية منظرجة		(II) Fill in the blanks in the follow
2 y - el es inclus		1. one furling = () cl
٥٧- قطمة داكرة		2. one chain = () y
FY- Edgeleje		3. one statute mile = (
Y 7 I Local Log		4. one nautical mile = (
A7- Marglergh		5. one sq. chain = (
٩ ٢ زاويتان متتامتان		6. one acre $=($) s
• ٣زا ویتا ن متکا ملتا ن		7. one gallon = (
1 mm and goined as IKalks		8. one bushel = $()$ g
٢ ٦- مثلث متساوى الساقين		9. one English ton = (10. one English ton = (
y y- Ilazi	· · · · · · · · · · · · · · · · · · ·	10. one English ton = (
3 y - And Raising		- and we will shall a subject of the
0 7- Homester Hill dy Lie 1 26		
٢٧- 1715 20 - 18 20	and the second sec	
٧ ٧- نقل حدود الممادلة من جمعة الى الجمعة الان	C ²	
تقراعته ۲۰۰۰		-
j ym sig lin	and the second	

-7 -	الرقم إ	
	الاسم:	
	. ؟ _ مقد او جهری متجانس	
رى	 ٤٦ درجة المقدار الجب ٤٦ المعلمان الحرفي 	
_منالثا بم	۲۹ مقدار جبری من الد	
	٤ ان حدى الكسر هما	
وجد مقسوم ومقسوم عليه ونات	ہ } _ في كل عملية قسمة ي	
		-
لا ضلاع مثلث تلتقي في مركز	ج ع إن الاعمد ة المنصفة	-
	0 - 11	
طة في المثلث تلتقي في نقط	م م م ابنا الخطوط المتوسط	
ة. وتسمى هذه النقطة مر		
	1.0 ,	
نجد انه يساوى مرر ٦سم.	٨٦ نقيس طول مستقيم ف	
ول ان الخطأ المطلق هو	وفي هذه الحالة نقر	
	والخطأ النسبي هو	
اره ۳۰۰ لا قرب اربعة ارقام	٩ ٢ _ ان قيمة المقدار ٢٢	
		-
- ٢ سى + ص = ٥٥ - سع	• ٥ - ١ ن المعادلة ٣ س -	
•	د	1
		-
ving equations:-		-
chains= () mile	
yards = () links	
) jds. = ()ft.	
) ft.		
) sq. yds.		***
sq. ch. = () sq. yds.	· · · · ·
). pints gallons = () pecks	
) 1bs() kilograms	
	qr. = () stones.	
		3
A HALL A LEWIS CONTRACT OF STATE		
ية أن المو أ الموانين الم		1
· · · · · · · · · · · · · · · · · · ·	and the sta	0

.

0

الرقع: الاسم:

، 3 مثلا أو جمهرى متجانس
 (3 مد لو جمهرى متجانس
 (3 مد لو جمال المحرض
 7 3 مثلاً أو جمرى من الله وجة المانية مثلاً
 7 3 مثلاً أو جمرى من الله وجة المانية مثلاً
 3 3 مد أن حدى الكسو هما بسطة ومقامة

ه ٤- في كل عملية تسمة يوجد متسوم ومتسوم عليه وناتي تسمة وفي بصر الحالات باق للقسمة .

٢٦ - أن الأعمدة المتحفة لا خلاع مثلث طعقي في موكز الدا فرة المرسومة

٢٤ ان الخطوط المتوسطة في المثلث تلتقي في تقطة واحدة تقسم كلا منها الني ظفين من جهة الألى وثلث من جهة القاعدة. وتسبى هذه النقطة مركز ثقل المثلث.

٢٥ - ١ن قيمة المقدار ٢٧٢، ٢٥ لا قرب ارسطة ارقام مصنوبة درو

، مد ان المعادلة ٢٠٠٠ ٢٠٠٠ ٢٠٠٠ من عن مع مع معادلة من الدرجة في في

(75 marks)

(I)

(it)FL

The Ci

in the freet

+13x2-5x-5 21-

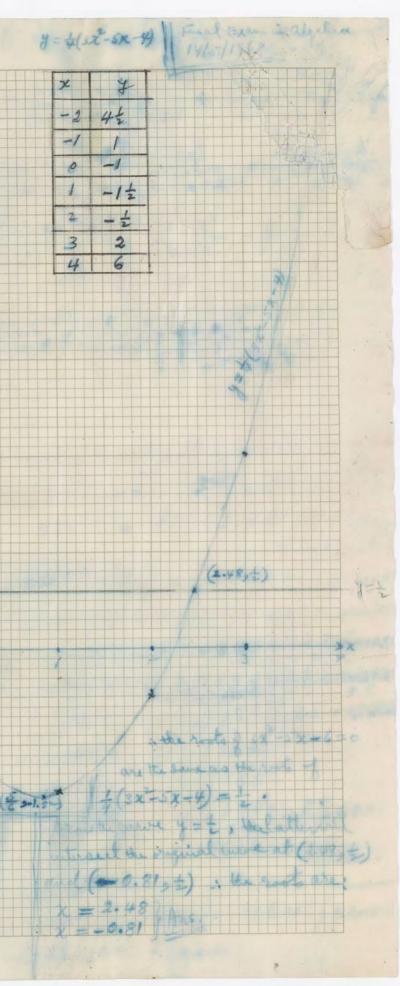
it the squater 3x -5x -6=

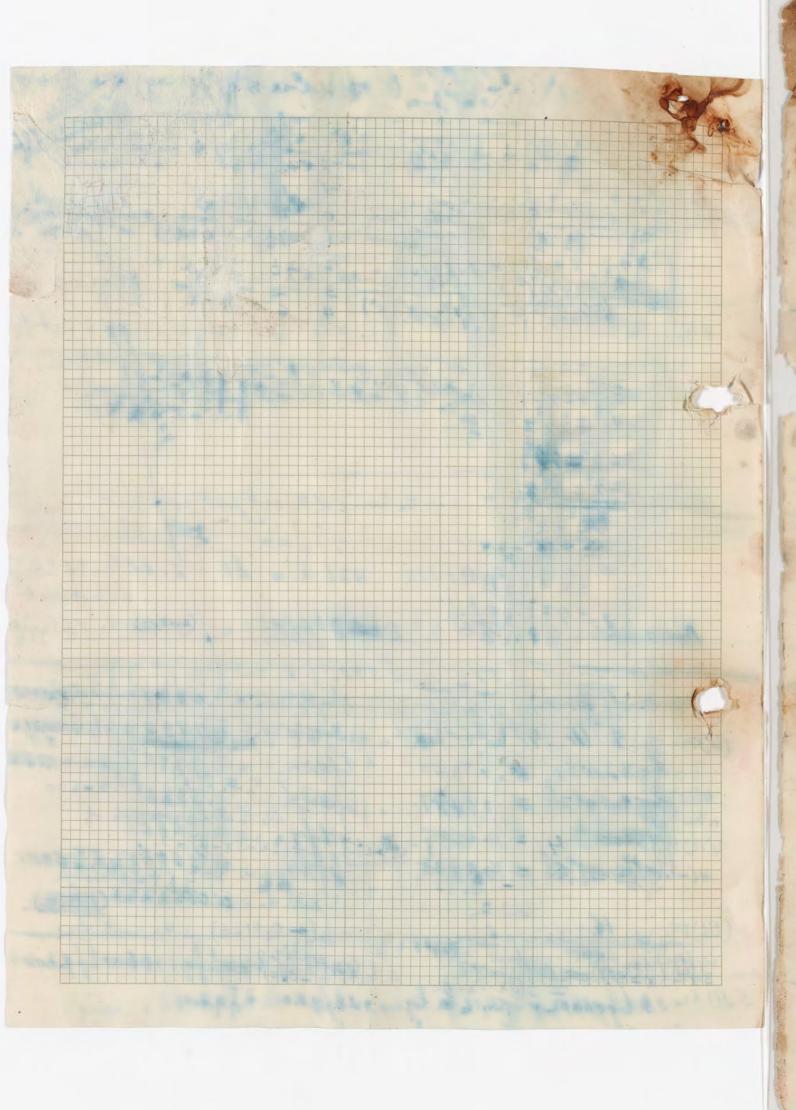
3x+5x+4=2 = 4(5x-5x-9)==

in it it is out the equation

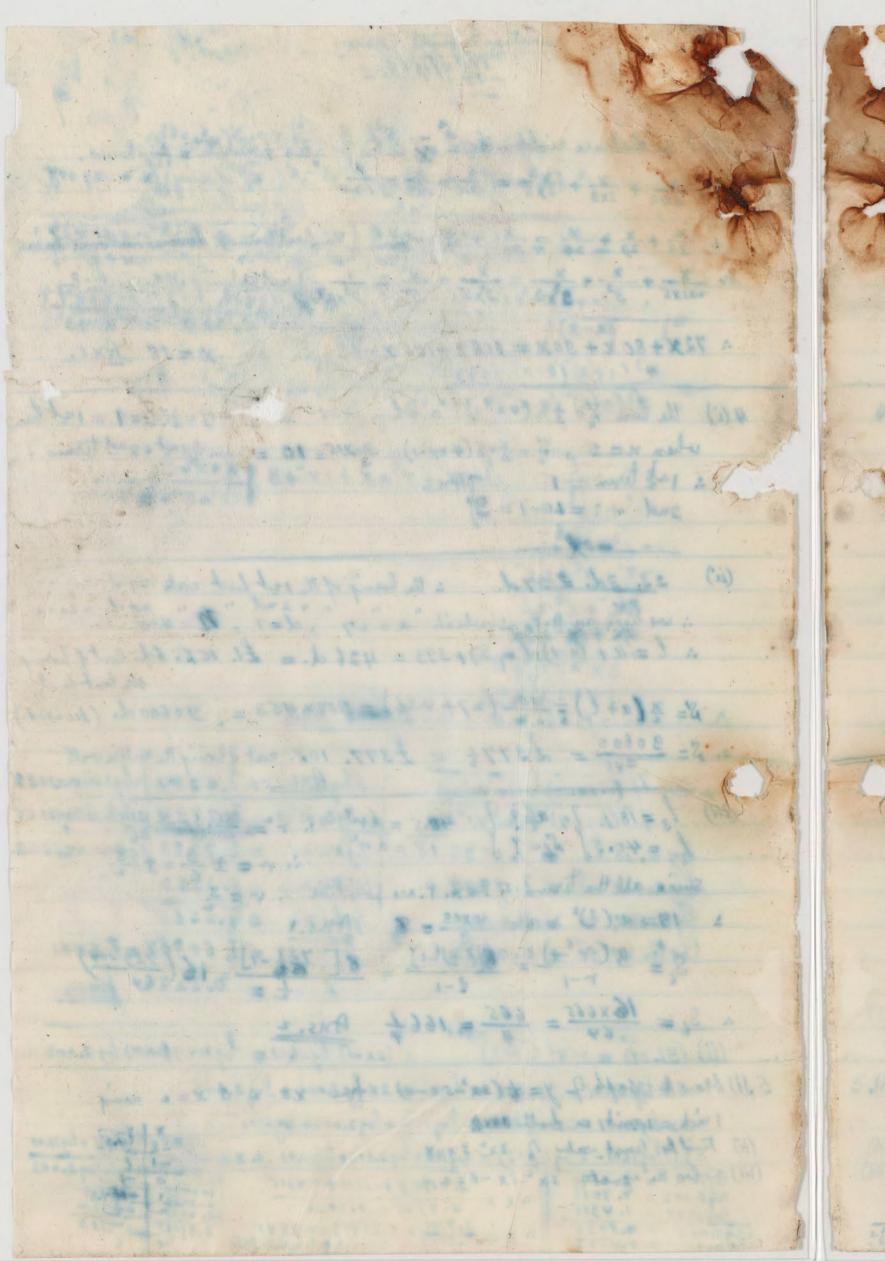
iten users	following equations:-	the blanks in the	<u>n</u> E	 F111	(1
elim () chaine= (furling = (eno	. ř .	
) links) = 31 yards = (
.jît.	the same side of the sa	statute mile = (
	. ft.) = olim isotiusn	eno	4.	
) sq. yds.	sq. chain = (ono	5.	
) sq. yds.) = .d. eh. = (acre =(one	.ð	
	·) pinta	gallon = (eno	2.	
) peolee) gallons = () = fedaud	eno	.8	
) kilograms) 1bs	English ton = (020	.0	
.aenota () =	19 () = .two () 91	English ton = (one	10.	
and the second sec	the second way and the second second second second second				

(25 marks).



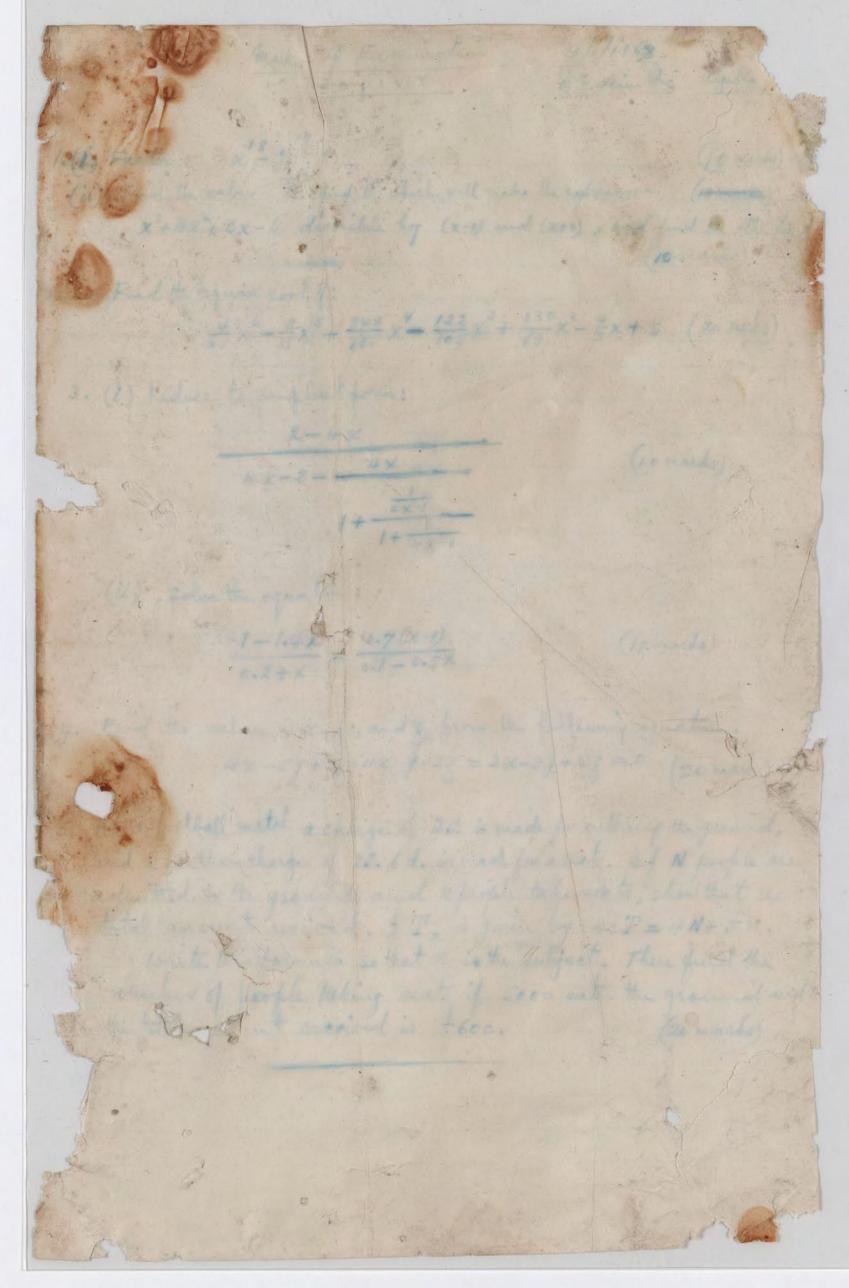


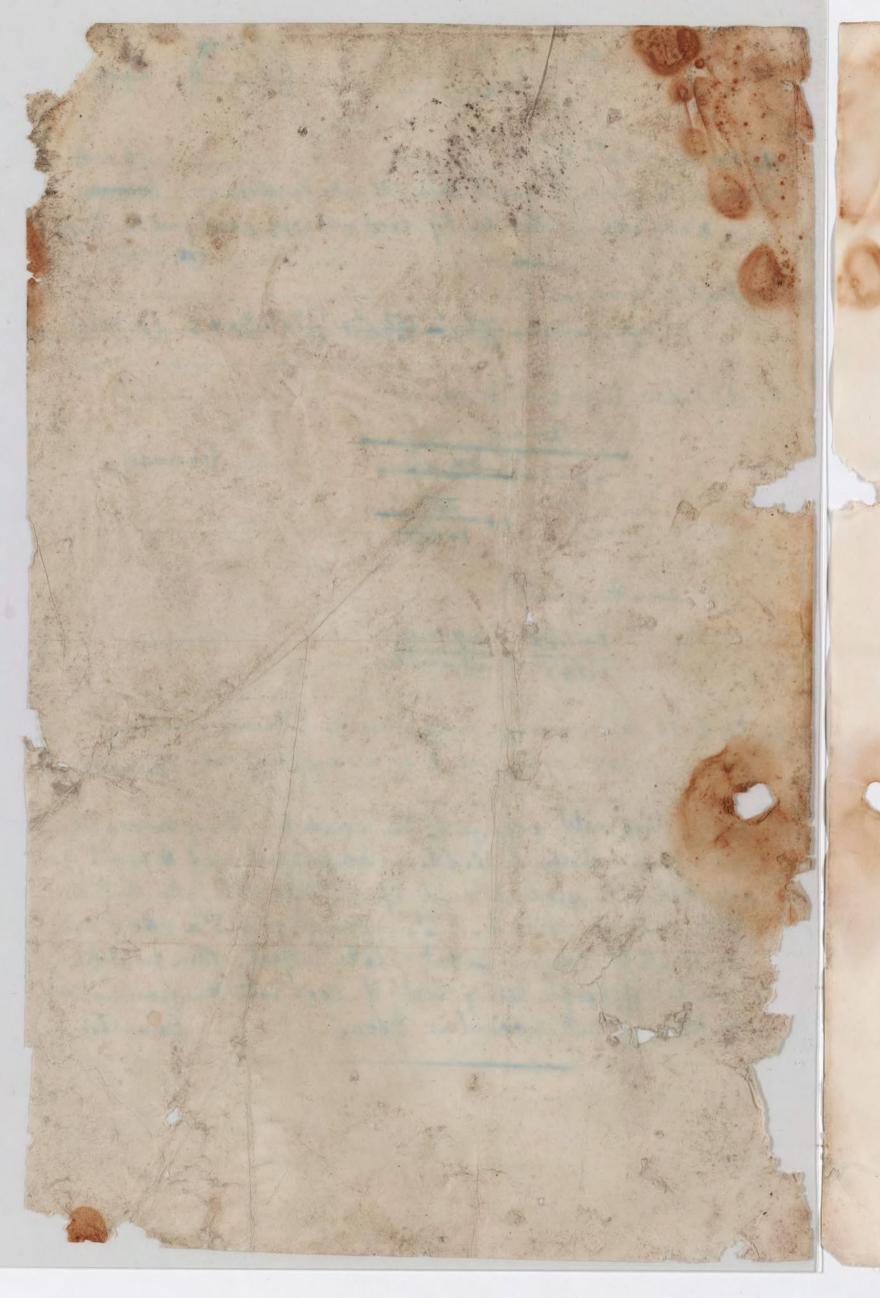
19/ 5/1968 distance ridden the a z miles also + minute, × + × + × = × + × - mo the best counted docominations: $\frac{\chi}{2x_{SXS}} + \frac{\chi}{3^2} + \frac{\chi}{3\chi_3} = \frac{\chi}{3\chi_5} + \frac{\chi}{3^2} - \frac{1}{3^3\chi_3\chi_5}$ multiplying ellthe grating by \$ 72×+80×+90×=108×+73××-18 AX =18 AX (ii) 23. 3d. 2 27 d. . . the honing of the rat fast cash is we have an A. Po is which " a = 27 , at = 1 , M = 4 : t = a + 6 +) of = 27+393 = 426 d. = £1. 15 %. bd. cost of hom x S= 2 (a+2) = 400 (27+ 426) = 200x 453 = 90600 de (Horaved. :: \$= 30600 = \$377 = ±377. 100. cat flying the cutic well $L = 40.5 \int S_{4} = 2 \int (18 = 4\pi^{2})$ Since all the times of the & P. are positive is v = 2 18= a(2) = a + 412 = 8 Ans. S= a(r'+) = a(ry'-1] = $S_6 = \frac{16 \times 665}{64} = \frac{665}{4} = 166\frac{4}{4}$ Arus. 2 5. (1) brew to graph of y= \$ (2x - 5x - 4) = frank x = 2 to x = 2 using I wich a granity on dusth aneg (11) Find the lenst walny of 2x 5x 4 (Iii) a dire the aquet 3x - 5x - 6= 6



Final Englishet in algebra, It you 14/8/1968 (x+y) (x+ +y) (x+ +y) (x+ +y) (x-xy) (x+ +xy +y) (a - a a - x (a + x) + a (a + x) + a + a + x + x) (a-x) (a+x) (a+x) (a-x) (a+x) (a+x) (a+x) a (a+x) (a-x) (a+x) (a+x " 1 d' (atx)" (a-x)" (a + x + x") 12 1 - 2 + 2 x - x + + x + x + x + x + B | x + x + 2 21 - X + 1× + andx" + 2/x 214 x - 3" -x-x+2x-3× +27 + B 7+133 = 421 d = 21 - 21 - 21 Rethandling Billing in Barl Ansk - men is 3 log 6. 1023 = 3. 0 2 94 2-light 00/ = 00058 X = 14 (0.1023) - (20 41 28 (1.007)* (ten 07° 500 - astiglow's - T-7.49 4 with towis = 2165 log 5. 1023 # 1.0038 | log Num. = 4.77.88 ly Den = 12223 logeray1=28 = 1.18747. logeran. - 9.2223 · lot 1.007 = 0.0029 - 1. yoby x = 4.5565 Log tan 47 51 = 0,0433 [] Jog X = 1. 50807 = T. 5081 x = 0.3222 Ans. the said a station that a (ii) (31.01) = 104 (2.003) : (3x-1) by shot = leg 104 + (2x+1) by 2.003 11 bin 3 & log 31.01 - log 31.01 = log 104+ 22 log 2.003 + log 2.003 1 - 3x ligsid1 - 2x by estimate lagic as logs on a logaling 107 + 10 10 + tog 31.01 × (3 log 31.01 - 2 log 2 003) = log 100+ log 2.003+ log 2.01 5. × 131201 5 2 log 2. 003 $\frac{164}{42.003} = 2.0170$ $\frac{1}{4315}$ $\frac{2.0170 + 0.3016 + 0.4315}{4.4745 - 0.5034}$ -170. [440 14: 1. 4975 (a. 012 3.9773

and the second and (344) - (2 1 3) - 2 1 3 - 2 1 3 A And have a flow and the service and and and a service 11 4 1X 11 1 3 二百姓 非正的 如此 医二十姓氏 六 and the second and the first of the second states and a -----BAX + X + X + Marris A - 12 and 1 - 1- CAL Tor I do and the second of the second the second seco the states go and hadren and ware " a rought games of a scale with the for 30600 - 10111 - 1917 - 1000 + # 18 (A - C +) # (Bat ar and - - and a long of a long + 2 + E Stars & K do 35 1 - 4 Leans and all the set of the first and the same addite a property . R - March a free of the set of Conter and a fait of a gran and 299×91 5 fill bears to the the fair of an have and a state on the state of the 1 and present and the barren burren the THEN A STOR AS A PRIME & - 21 - ME OFTENS





Shamash Secondary School Mid-Year Examination, Feb. 1968 Date: 7/2/1968 Time: 8:30 - 11:00 a.m. ____ Attempt all questions: (4 marks) (4 1:) (4 11) (4 marks) (4 11) (4 ") (10 ") (10 ") (10 marks) (10 ----

Subject: Algebra Class: 4th Year, Scientific Section. 1. (a) Resolve into factors: (i) $(2a+b)x^2 - (a-b)x - (a + 2b)$ (ii) $201x^2 - 99x - 102$ (iii) $x^9 - 64x^3 - x^6 + 64$ (b) Show that any common factor of A and B is also a factor of mA & nB (8 mark) 2. (a) The following equation is true for all values of x: $(2x-3)^2-c = 2Ax^2 - 4Bx$. Find the values of A, B and C. (8 ") (b) Of the following three equations, one is always true, one is sometimes true and one is never true. Find which is which, giving your reasons: (i) $3x(x-4)+x = 5(x^2-1)+13-11x$ (ii) $x^{2}(2x-5)+3(x-1) = 2x^{3}-x(5x-3)-3$ (iii) $x(x^2-1)+2(1+x)(1-x) = 0$ 3. (i) Solve the equation: $3x^3 - 14x^2 + 32 = 0$ (ii) Solve the two simultaneous equations: $x+y+2xy+x^2+y^2 = 0$ (1) $x-y-2xy+x^2+y^2 = 6$ (2) 4. (i) Running separately, two taps can fill a bath with water in "a" and "b" minutes respectively. Prove that they take $\frac{ab}{a+b}$ minutes to fill it when running together. (ii) If, when they are running separately, the first tap can fill the bath in 7 minutes less time than the second, and when they are running together they fill it in 12 minutes, find the values of "a" and "b".

- candidates.
 - candidates.

5. (i) In an examination taken by both boys and girls, 41 candidates out of every 68 pass. Five boys out of every 8 pass and 7 girls out of every 12 pass. Find the ratio of boy candidates to girl

(ii) If 168 girls passed the examination, find the total number of

service of the servic

of Lines and Provident States of the

inaustanto dis forenti

(1) $(2n+5)x^{2} - (5-5)x - (6-20)$ (11) - 201x - 99x - 102

(b) Show that may contact if had it had it is the slaw of the show of the bar of all

s. (a) The dollowing achieved in troation ; he sulmon of x: (b) di the tellesine three equilibri, and is alasti brue, one is somethers the and one is access the second in and and of in which,

> - 34.4-14-2.12 - 214-2.45 5-(5-2) - (1-2) - (1-2) - (22) 6 = (x+1)(x+1)5=(1-3)x (113)

> > (1) Splan the solutions is - the solution (1). in the two stants are stants out and out in the

. (1) minning vorgenraften ben filge bes feite a genen ales eine in. in inter and the second state and the second interest and bad to sill is when reading to the sil (11) If, when they are rubhling application, she faret tak one fail. barb is 7 signtes less the the store , as when they are whites togethor beer fills is in the minerty, find the values

(1) In an examine the balan by Moth Down and Alling, A lange the set of the second backs out (1) in a second back bord out of a farm of a second of "to reduce first inf and the and her and her the base of the local sector of

Applicate ist top full the bath is " minute is it file is get bette is an minute he and a set to be To as is the to the the second take togethe fill (1 + +) of the balts in one ments atte a si a si si Pet and and the rab) . . . all the hall (ii) When ruraning separately the 1st tap fills the beth in 7 minute than the and tap as and as a family a second to the to the to the to the the to also, when maning together, they beth fill the beth in (26) ant is all = 12 and O I from O b= a+7 and from @ about a+126 a = 1/a - 84=0 = (a+4)(a=21) = 0 + a= -4 to be discarded i b= a+y= 21+ y= 28 minute n f ma=21 minute 5(i) let the resident his many term the b, and 11 (The man & gill a " I with care berg 5b+72= # (b+q) " 5×7×3b+ 7x=×1/2 = 6×4/(b+q) Jusseb+2388=2460+2469 or 96=89 (ii) - liken the ke. Front can didate who parad the same signal to 168; thend in the above relations observed : - 7 2 2 1 1 1 1 1 6 8 X 18 1 19 1 1 1 1 2 88 1 7 4 1 1 1 1 1 D = 2 = 2x1 m = 8x32 = 250 miller Brand date + Styre Prover at a contrary

40. 11 60 60

ial Candidate



(i) 13 k (x - hik 25 (x + 1) + 4 2 h 1 x 2 h 1 h 1 in the line that in a x 3x21 /x + x 5x 5 + 3 - 11 × 1 x = - 3 1 x = - 4 min is 2x - 5x + 12 = 22 - 5x + 12 and illentity and (H) and a x(x+1)(x+1)+2(x+1)(1-x)+2 / 11-12 has a find the first in is (2+1)(2-1)[x-1=0 in R=1 7 Still a condition of equation which is and and an and the for the bally only he 2. (i) 2x-142+22=0 By tril 2 more = 2 sotisfiette equation All x+ f+ 2x g+ x+ y = a O is (x+) + (x+) = a (4a) from The (x+y) (+x+y=0 to x+y=0 at y=-xonate @ a set subistitute prove into (24) , here a (x+x) + (x+x) = (+ x + x + 2 + (+ -) offer (Quit Ge) what: Cararil+ (arar) = 6 + 2x+ (2x+)= 5 12" +6x -4=0 at 2x +3x - +== a fax -1) (xee) = 0 al x of age -3

and the second and and and a second and a se The second and the second of the second and the second and the and a Carrow water a grade to a Carrow a 12 10 Station 1 and the in in the week of a lot C. R. REALTS L. A.L.

Aller in a like this the loss of the allowed the first the first Deres and the second and an an (and a standing and at hand the stand of a subran and the sole that a sole is individual and the shirt of an an and the is a line to A the way and a second the second of the second second second (2+ Drown a section before a land the all and

to the first of the state of the statest - frankly (real) reached all a service and a service of a service of a service of the servi wind as Water and a low to be the the the the and That I was The frageline of the same that a the state of the s

2702 MARCHARD X + (2+2) X = (2 =) - ments method to 1 A more letting the and are all in an Board and in At Dis With the spectro & Boiling To change that have a - Classin & Cople- 8 Sparstondare (Case Vedan Stand Bary Aug

a service and a second service a factor and a factor of the second secon

the total a - No do a - Cana Dan Man + in a do - 1 min 3461/2-33 XH34)= profit van (1 -1) Husit $\frac{1}{x} = \frac{1}{x} = \frac{1}$ (1-he-e)(2-)(x+=)(x++x+)(x++x++)(x+++); / (b) it the maker (mater + A must B de F, and let A= a F and B= bF The full a war of the Face white F = for a particular of the more hert THE YEAR A WERTHARD ELVE with an x = R , the min R(R-2) and man - (the) with the b. In a to the start a lord and the and the interest all alled by in the appropriate the first of the second and the second and the second and The set appropriate (20) and A-38 + 3 - and A-40 - A A-10and askepter a mile Dever A- alt a state to a got proversite by sufficture to BERENDINER HERENDER at altouter while and for the state of the state of the and a start and a set of the set of the start and a little and a littl 24 Report Constants Congre Warren al a conference 5

Subject: Mathematics Class: 4th Scientific Year

All questions are to be attempted.

(i) Resolve into four factors: $x^9 + x^3y^6 - 8x^6y^3 - 8y^9$ 1.

2. arranging your work neatly.

3.

5.

I rode one third of a journey at 10 miles an hour, one third more at 9, and the rest at 8 miles an hour. If I had ridden half the journey at 10, and the other half at 8 miles per hour, I should have been half a minute longer on the way. What distance did I ride ? · (20 marks)

terms.

well ?

(iii) The third term of a geometric series, in which all the terms are positive, is 18 and the fifth term is 40.5. Find the first term and the sum of the first six terms. (7 marks)

(iii) By drawing the appropriate straight line on your graph solve the equation $3x^2 - 5x - 6 = 0$.

Ebamash Secondary School Final Examination, May 1968

Date: 14/5/1968 Time: 8:00-11:00 a.m.

(6 marks) (ii) Simplify: $\frac{a^{4}-x^{4}}{a^{2}-2ax+x^{2}} \div \frac{a^{2}+ax}{a-x} \left\{ x \left\{ \frac{a^{5}-a^{3}x^{2}}{a^{3}+x^{3}} \div \frac{a^{4}-2a^{3}x+a^{2}x^{2}}{a^{2}-ax+x^{2}} \right\} \right\}$ (7 marks) (iii) Find the value of B if $2x^{4}+2x^{7}-5x^{3}-x^{7}+3x^{2}+x^{4}$ exactly divisible by $x+x^{-2}$ 1 ½ +x+3 +B is

(7 marks)

(i) Compute by logarithms the value of x, if $x = \sqrt{(0.1023)^3 \cdot \cos^2 41}$ $(1.007)^2(\tan^{5}47^{\circ}5)$

(10 marks)

(ii) Solve for x the equation: (31.01) = 104(2.003)2x+1

(10 marks)

(i) The sum of n terms of a series is $\frac{1}{3}n(4n^2-1)$. Find the first two (6 marks) (ii) In boring a well 400 ft deep the cost is 2s. 3d. for the first foot and an additional penny for each subsequent foot. What is the cost of boring the last foot, and also of boring the entire (7 marks)

(i) Draw the graph of $y=\frac{4}{3x^2-5x-4}$ for values of x from -2 to +3, using a scale of 1 inch to 1 unit on each axis. (7 marks) (7 marks)

(ii)Use your graph to find the least value of $3x^2-5x-4$. (6 marks)

(7 marks)

Einel Executer, Colool Einel Exector, big 196

Subject: Mersematics Class: 4th Ectentific Tear

All questions are to be attempted.

(1) Beaulve into four factors: x⁹+x²y⁶-8x⁶y³-8y⁹

(41) Steptify: $\left(\frac{e^{-x}}{e^{-x}} + \frac{e^{2}}{e^{-x}}\right) \times \left(\frac{e^{5} \cdot e^{3} \cdot x^{2}}{e^{5} \cdot x^{2}} + \frac{e^{2} \cdot e^{3} \cdot x^{2}}{e^{-e^{2} \cdot x^{2}}}\right)$

ALS A COLORADA TO

(1) Compute by logarithms the value of x, if xm, (0, 1062), (cm²+7²) arranging your work neatly.
 (1, 007)²(tan²+7²)
 (1, 007)²(tan²+7²)

(adress 01)

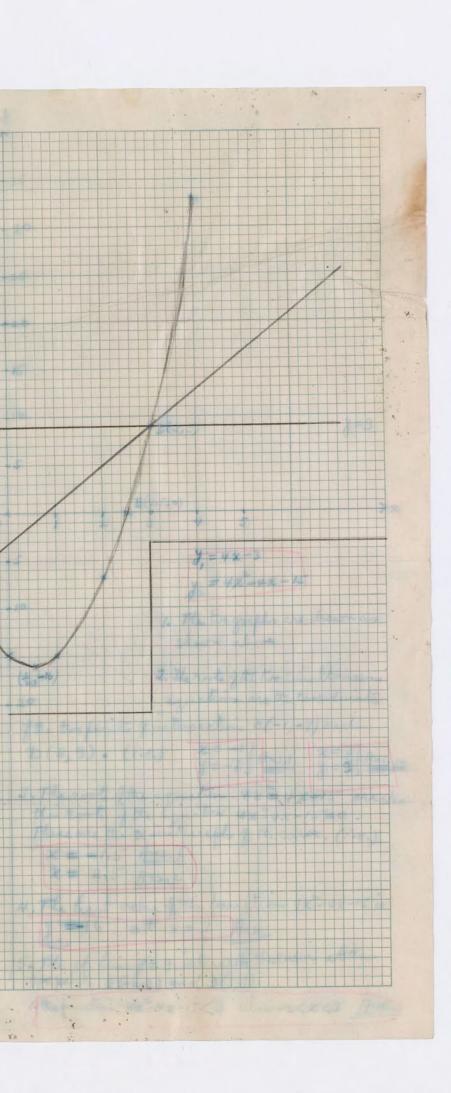
I rode one third of a journey at 10 miles an hour, one third wore (1.9, and the rest at 8 miles an hour. If I had ridden talf the journey at 10, and the other half at 8 miles per hour, I should have been half a minute longer on the way. What distance did 1 ride ? (20 marks)

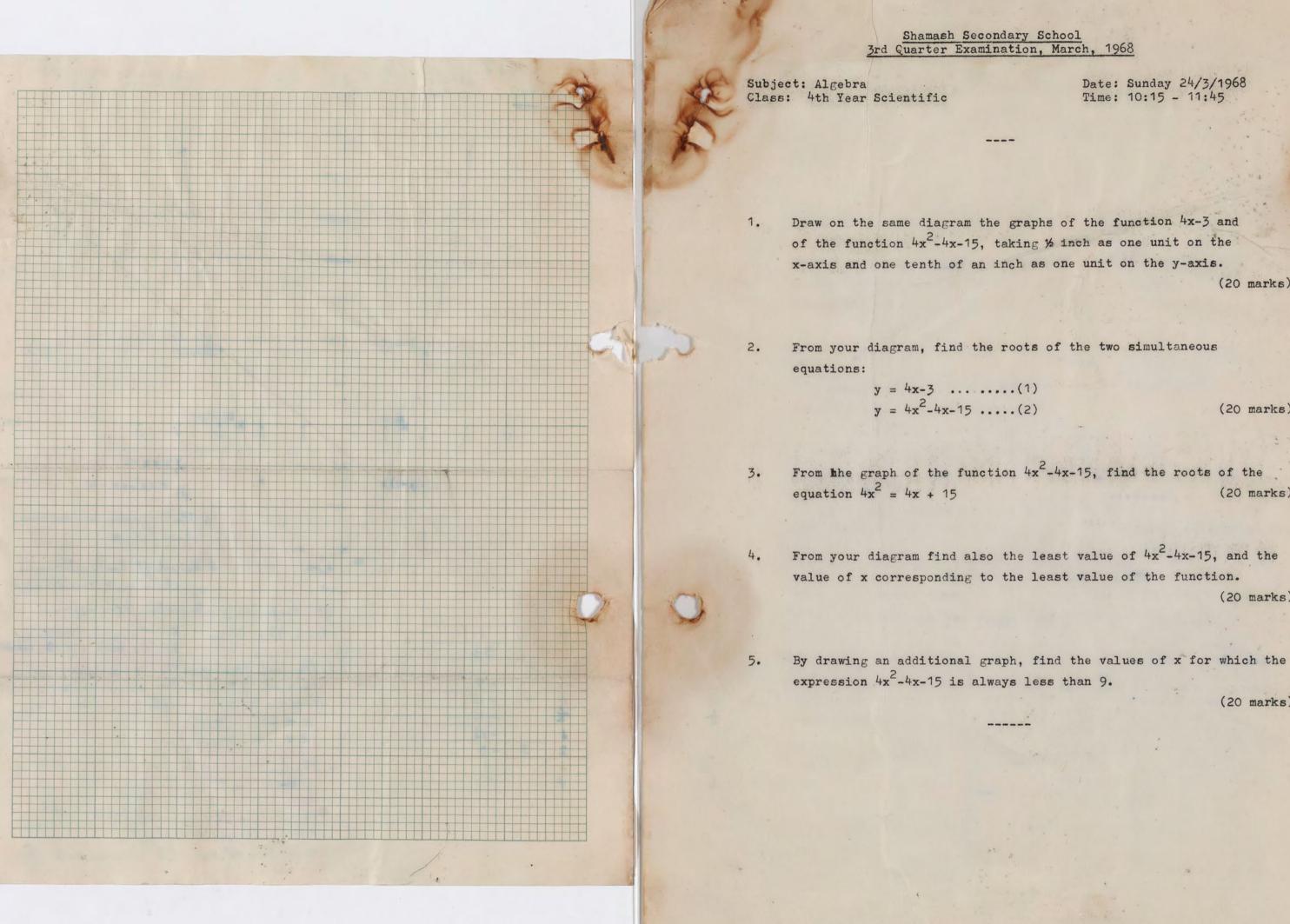
(1) The sum of n terms of a series is an(4n²-1). Find the Mirst two terms.
(41) In boring a well 400 rt deep the cost is Re. 30. for the light is foot and in additional penny for each submettent foot. What is the test of toring the last foot, and also of boring the entire well.

(111) The third torm of a generatric series, in which all the terms are positive, is 18 and the fifth term is \$0.5. Find the first term and the sum of the lind of the line of the line of the line of the series)
(1) Draw the graph of y=M(3x²-3x-4) for values of x from -2 to +3. using a scale of 1 lack to 1 unit on each axis. (7 marks)

(4110be your graph to find the least value of 32 -52-4. (6 marks) (411) By drawing the appropriate straight line on your graph colve the equation 3x -5x-6=0. .s

+ 5





Date: Sunday 24/3/1968 Time: 10:15 - 11:45

of the function $4x^2-4x-15$, taking ½ inch as one unit on the x-axis and one tenth of an inch as one unit on the y-axis. (20 marks)

(20 marks)

3 %

(20 marks)

value of x corresponding to the least value of the function. (20 marks)

(20 marks).

Shamosh Secondary School

Subject: Alrobas Scientifto Date: Sunday 24/3/1968

Drew on the same discrem the graphs of the function ha-3 and of the function hy -+x-15, taking M inch as one unit on the x-axis and one tenth of an fuch as one unit on the y-axis. (20 mories)

.....

From your disgram, find the roots of the two simultaneous equations: $x = \frac{1}{2} - \frac{1}{2}$

The graph of the function $4x^2 - 4x - 15$, find the roots of the itight $4x^2 - 4x - 15$, find the roots of the itight $4x^2 - 4x + 15$.

From your disgram find also the least value of "x²-4x-75, and the value of x corresponding to the least value of the function. (20 marks)

By drawing an additional graph, find the values of x for which the expression by 2-bx-15 is plways less than 9. (20 marks). End

Subject: Algebra Class : 4th Year, Scientific

Attempt all question 1. (i) Resove into five fact

> (ii) Find the value of 'A' 3 2 6x + Ax + x - 6 divi

2. Find the square root $\frac{9}{4} \times 6^{-} 2 \times 5^{+} + \frac{74}{45} \times 4^{-} - \frac{61}{30}$

3. (i). Reduce to simplest

(ii). Solve the equation

4.

Find the values of

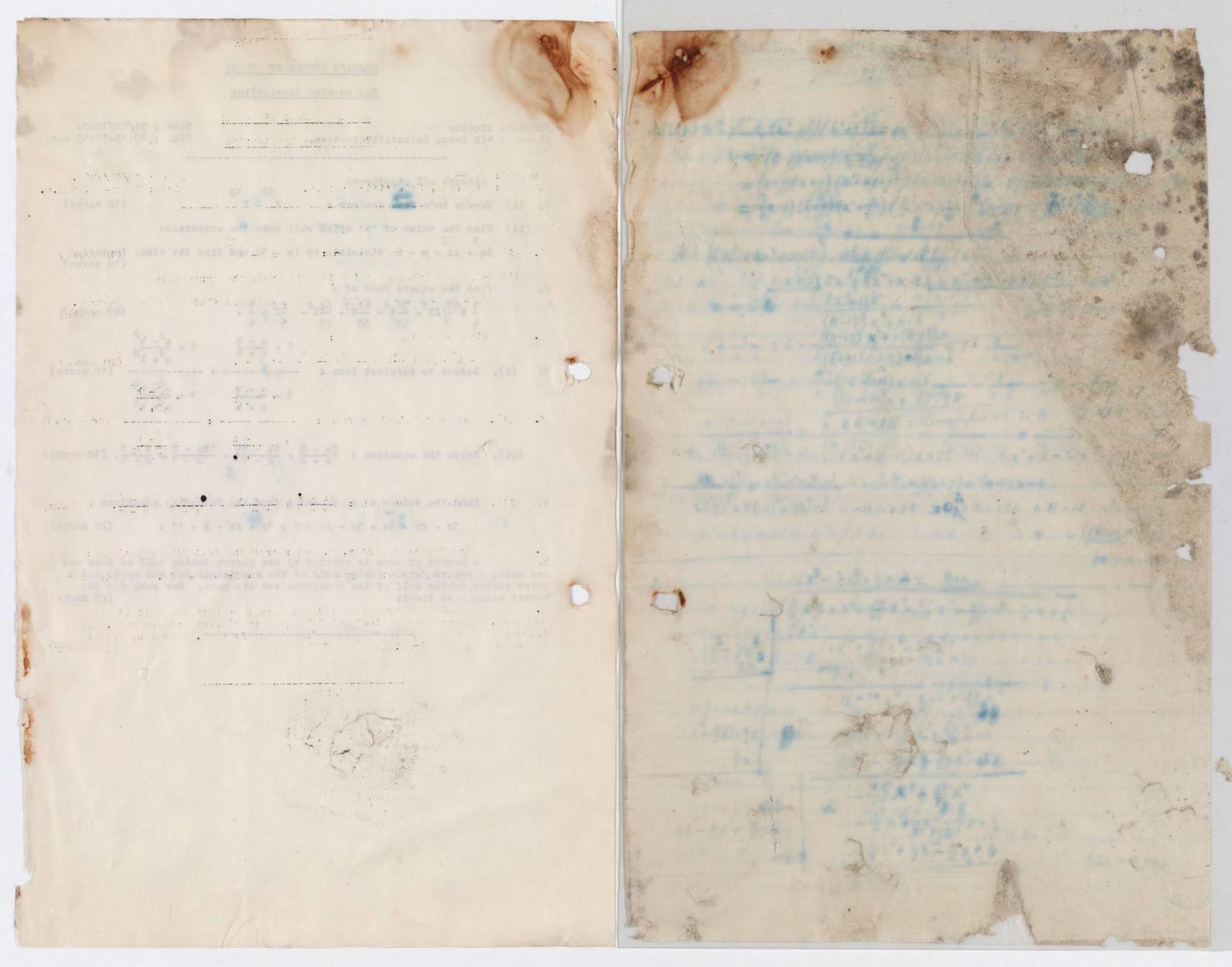
3x - 2y + 4z = 3y - 2x + 7 = 7x + 2z - 2 = 11.

5. A basket of eggs is emptied by one person taking half of them and one more, a second person taking half of the remainder and one more, and a third person taking half of the remainder and six more. How many did the basket contain at first? (20 marks)

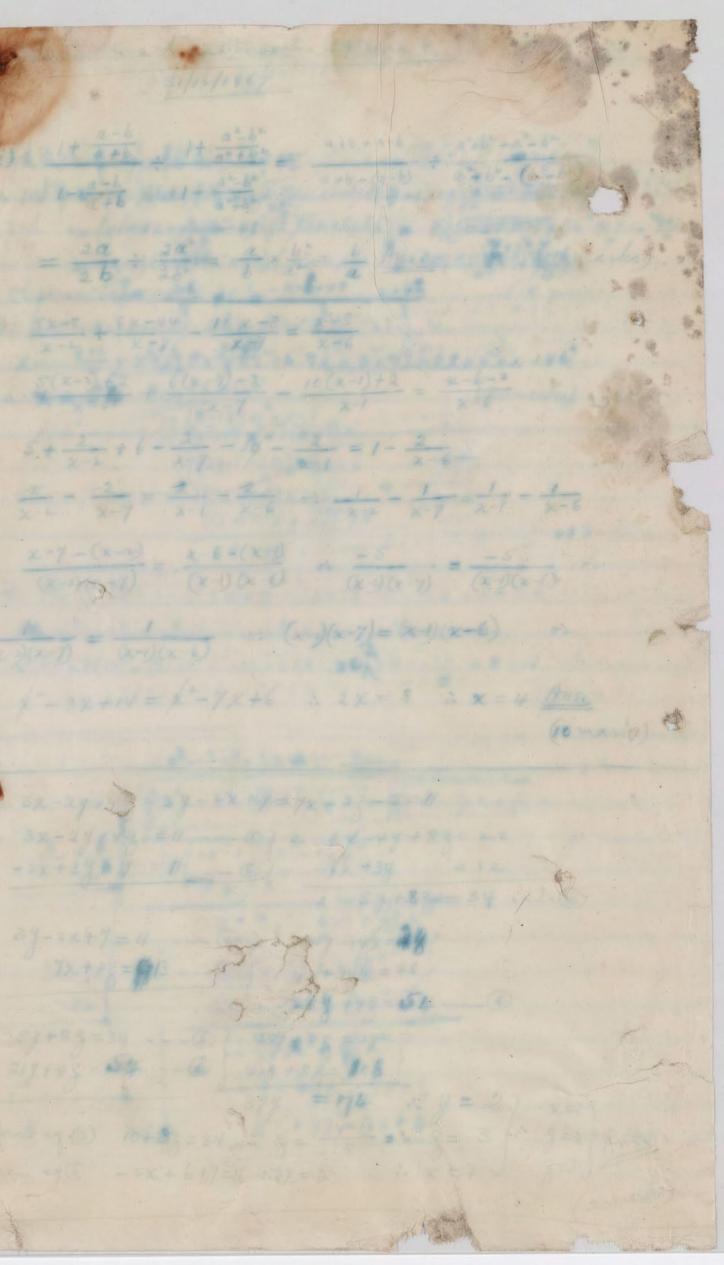
SHAMASH SECONDARY CCHOOL

2nd Guarter Examination

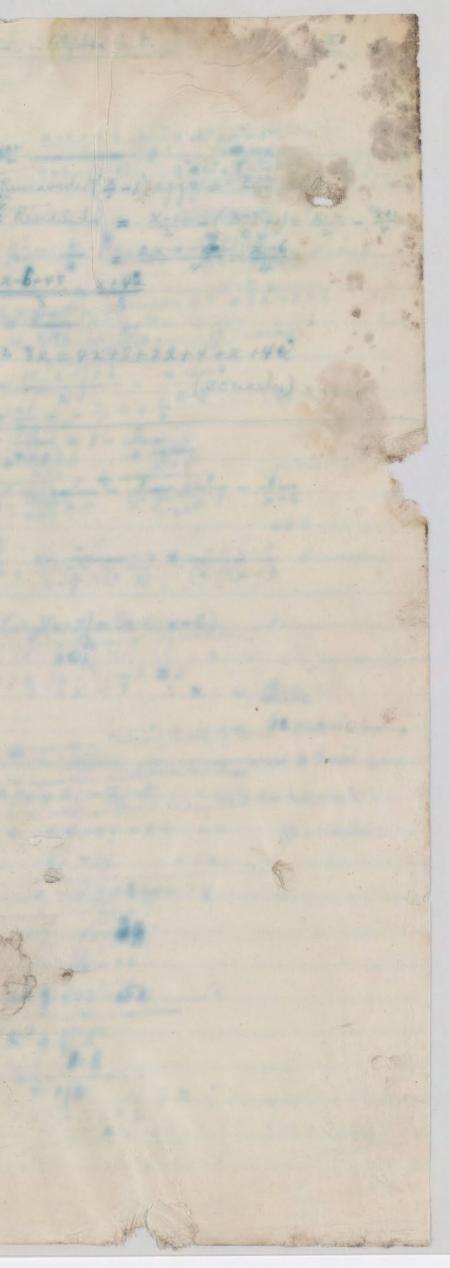
Section.	Date : 31/12/1967. Time : 10:15-11:45 a.m.
ns: 12 12 tora: X - Y	(10 marks)
' which will make the	expression
isible by $(x + 3)$ and	find the other factors. (10 marks)
of: 1.3 62.2 2.1	
$\frac{1}{2}x^{3} + \frac{62}{75}x^{2} - \frac{2}{5}x + \frac{1}{4}$	(20 marks)
form :	$1 + \frac{a^2 - b^2}{a^2 + b^2}$ + (10 marks) $1 - \frac{a^2 - b^2}{a^2 + b^2}$
a + 1	a ⁺ + b ⁺
$: \frac{5x - 8}{x - 2} + \frac{6x - 44}{x - 7} - 6$	$\frac{10x - 8}{x - 1} = \frac{x - 8}{x - 6}$ (10 marks)
x, y, and z from the	following equations :
3y - 2x + 7 = 7x + 2z	-2 = 11. (20 marks)

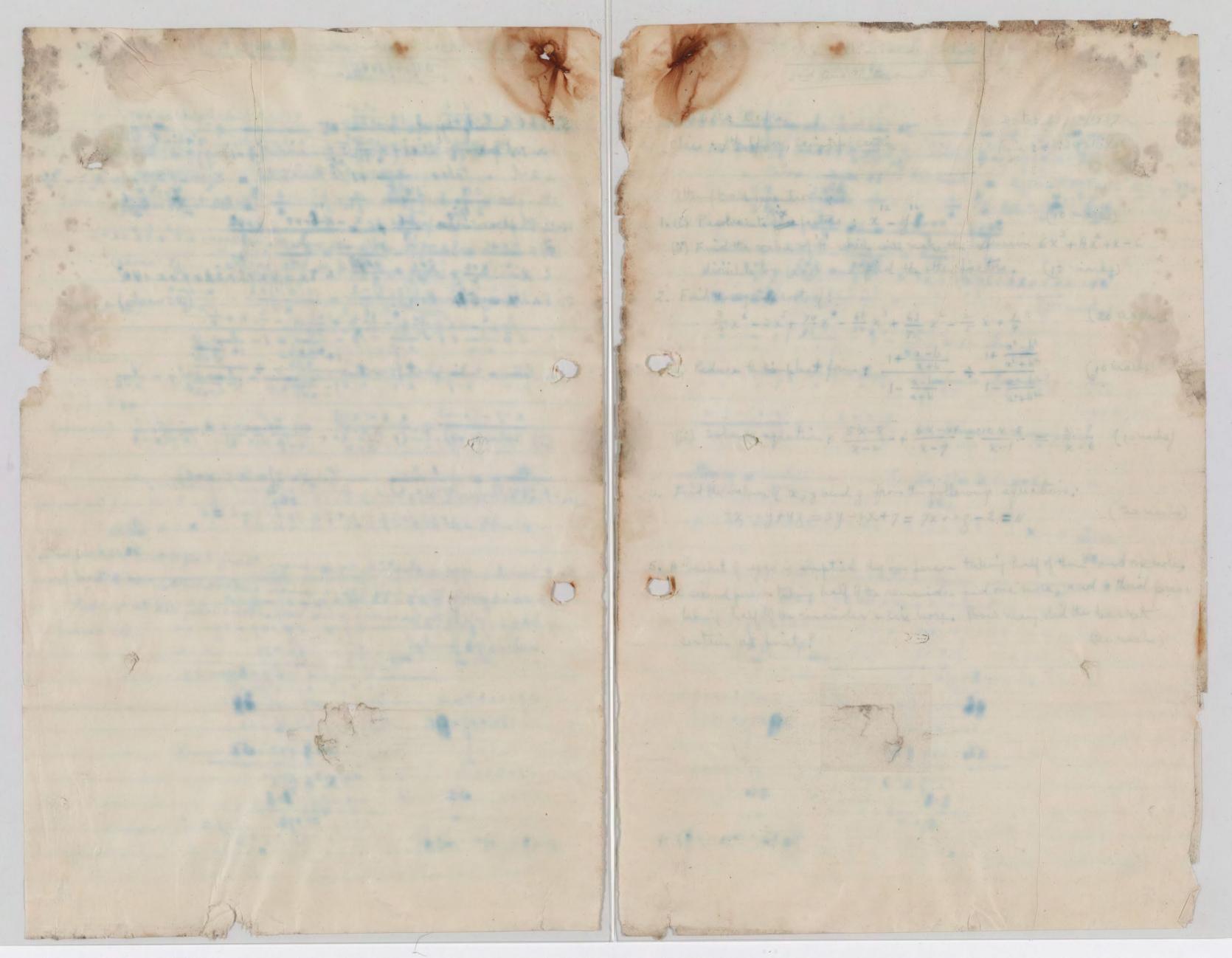


 $=\frac{2a}{2b}\div\frac{2a}{2b}=\frac{a}{b}\star\frac{b}{c}$ A Contra & Start and Q1 = - -----(x-175-D) x glant) angla w -() in ay .) = y = +x + = 7x + 2 - 2 - 11 - 10 the fit 104-25-224 - 22

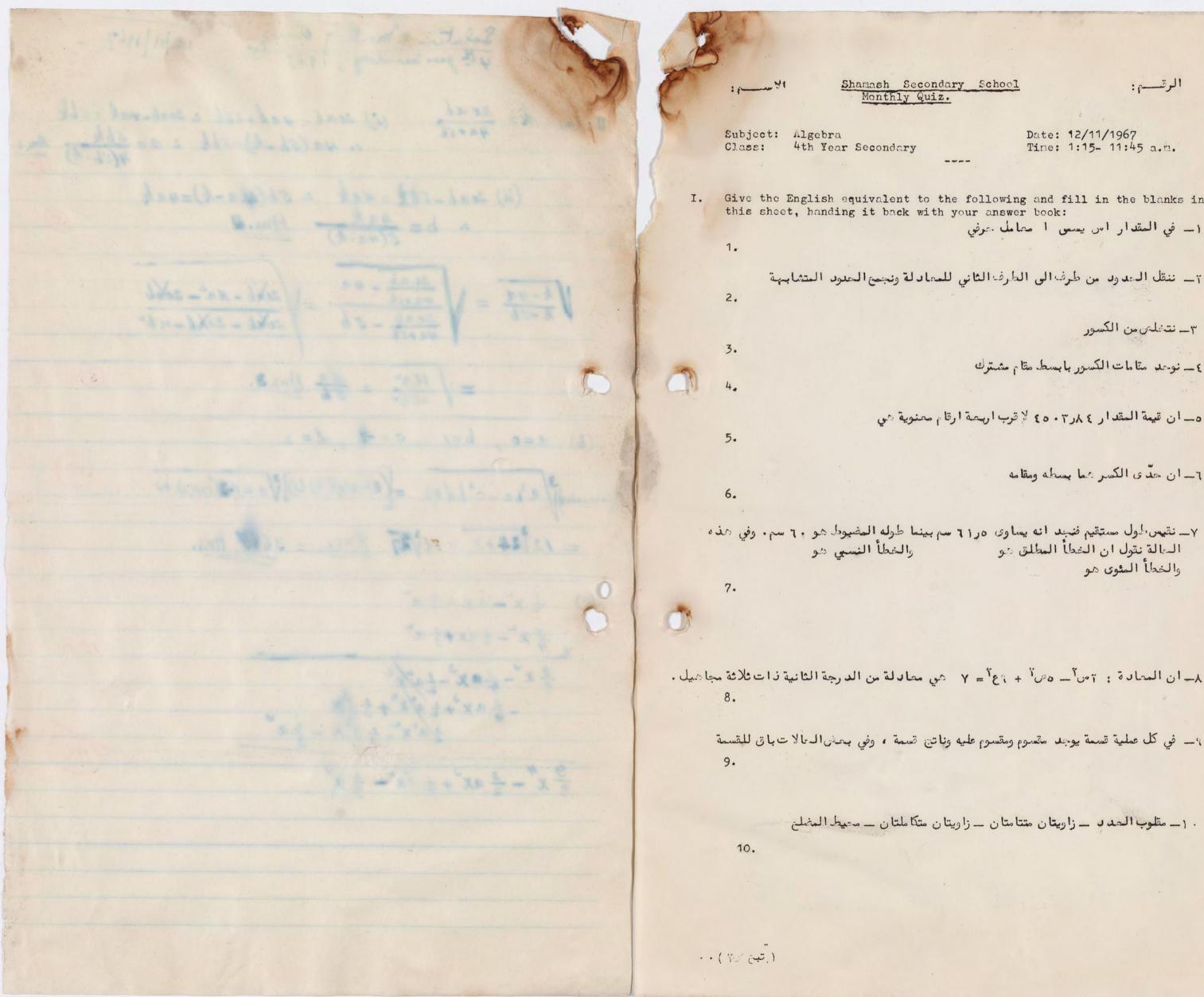


Fibt & hat show and have at in 125 parries takes of 5 FT in Sumarrise & as harry and the second state of th a taken the of the Romandal periode the product of interest the state And Trades a harman a service - service - the service -Q ____ 72 The second and the should be set well and a set of the lit has a set the deal Squar St. 0 Maria Constant Den Standing Bar A MA





Solution to mint by Quing 12/11/1967 the stab (i) sout - 4ak+ste a sout- 4ak = stk a. 4a (5b-k) - 5bk : a = 5bk Am. (ii) 20ab-50k=4ak : 5b(4a-k)=4ak · b = Hak Ams. R a = / 16 ar = 10 1 1m2. 3. (b) a=0, b=1, c=-2, d=2 A LAND AND A abe-abe 3 abe-c'bd+2 = (02=000 4) Vo-(2000 +2 = 12 124+3, = 12 127 Mas. = 36100 Ans. 3 x - + ax - 1 a/x 9x - 3 ax + + 1x - 5 x The state of the



Date: 12/11/1967 Tine: 1:15- 11:45 a.n.

Give the English equivalent to the following and fill in the blanks in ۱ فی المقد از اس یسمی ا معامل عرفی

٦- ننقل الحدود من طرف الى الطرف الثاني للمحادلة ونجمع الحدود المتشابهة

٣_ نتخلص من الكسور ٤ ـ نوجد مقامات الكسور بابسط مقام مشترك

٥- إن قيمة المقدار ٢٨٢ . ٥٦ لإقرب اربحة ارتام معنوية هي

٦ ان حدّ ي الكسر عما يسطه ومقامه

٩ في كل عملية قسمة يوجد متسوم ومقسوم عليه وناتي قسمة ، وفي بحش المالات باق للقسمة

. 1 _ مقلوب الحدد _ زاويتان متتامتان _ زاويتان متكاملتان _ محيط المضلخ

المس منط المعديقة في طرف الى الدارة الكاني للمعادلة وتبسع المنفرد المتشابية

ف- أن الما المقدار عامر 7 - وع لا فريدًا رصة المقام معنوبة اس

in by the ship that were stored with granter glass and a de with that the de themes

الم المتعلمية المعدية من المعلم المعالية من المارية من المعالية من مع معالم المعلى الم

course a free hands

e and a second and a

4th Year - Algebra

II.

 $(3abc - 2bcd)\sqrt[3]{a^3bc} - c^3bd+3$

(e) Find the product of $\frac{3}{2}x^2 - ax - \frac{2}{3}a^2$ and $\frac{3}{4}x^2 - \frac{1}{2}ax + \frac{1}{3}a^2$

-p.2-

Monthly Quiz.

(a) If $k = \frac{20ab}{4a+5b}$ find (i) "a" in terms of "b" and "k" (ii) "b" in terms of "a" and "k". Find also the value of $\sqrt{\frac{k-4a}{k-5b}}$ in terms of "a" and "b".

(b) If a = 0, b=1, e=-2, d=3, find the value of

Find olan the value of V - 40 in torna of "a" and "bar

Subject: Algebra Class: 4th Year Secondary

Attempt all questions:

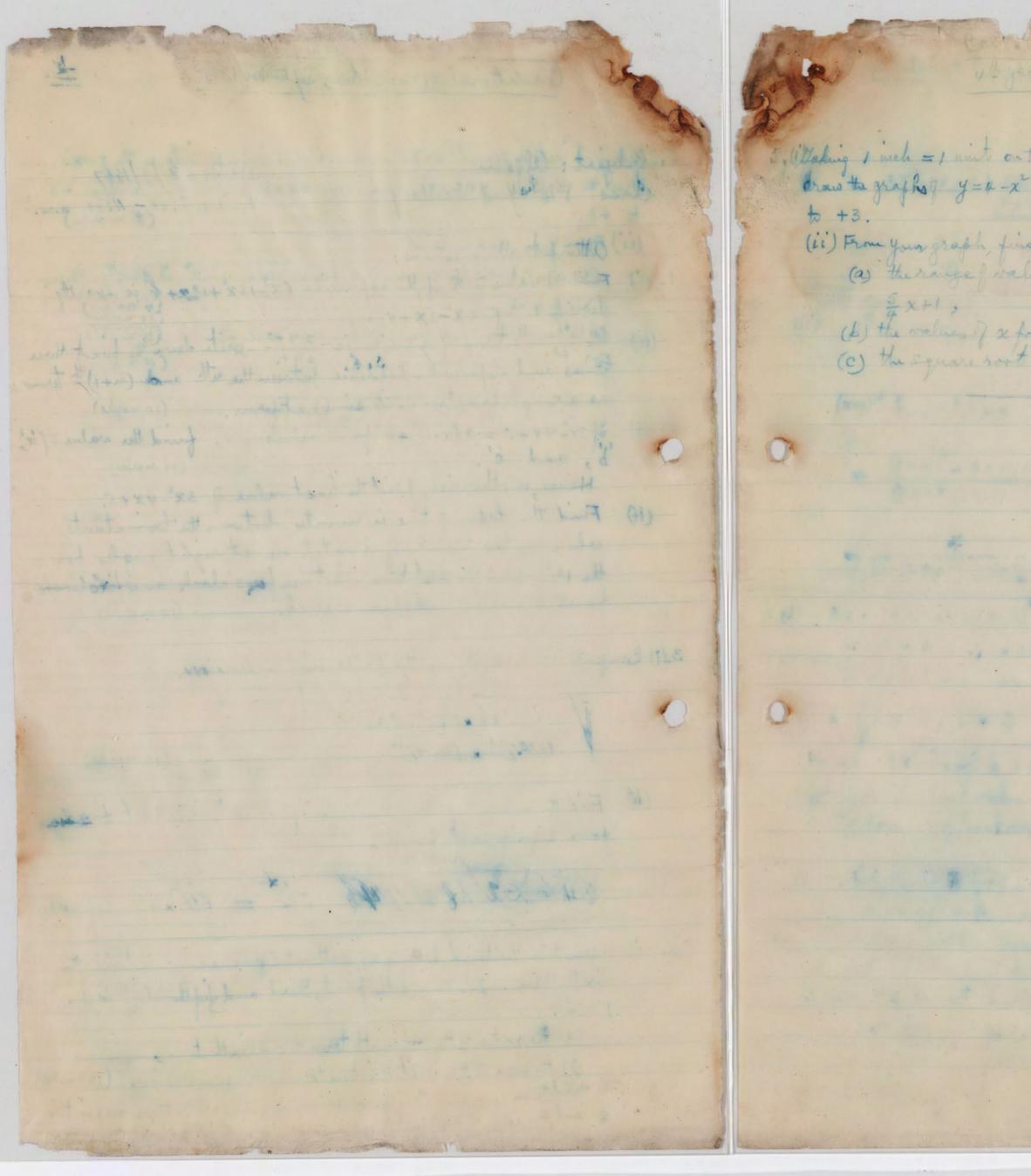
(i) Find the value of k if the expression $6x^3-13x^2+18x+k$ is exactly divisible by $2x^2-3x+4$ 1. (10 marks) (ii) If the n th term of a series is $\frac{2n+1}{2n+3}$ write down the first three terms and express the difference between the n th and (n+1)th terms as a single fraction in its simplest form. (10 marks) (i) If $3x^2-4x+5 = a(x-b)^2+c$ for all values of x, find the values of 2. a, b, and c. (10 marks) Hence, or otherwise, find the least value of $3x^2-4x+5$. (ii) Find the lapse of time in minutes between the two instants when the two hands of a watch are at right angles for the 1st and the 2nd time between four O'clock and five O'clock. (10 marks) 3. (i) Compute by logarithms the following expression : $\frac{\sin^2 15^{\circ} 04' \times \cos^3 31^{\circ} 31'}{(510.7)^2 \times (4.007)^3}$ (10 marks) (ii) Find the value of x from the following equation correct to four significant figures: 2x-132 = 64^x x 40 (10 marks) 4. (i) Three times the third term of an arithmetic progression is twice the sixth term. The sum of the first, third and fifth terms is 9. Find: (a) the ratio of the ninth term to the sixth term, (b) the sum of the first thirteen terms of the progression. (10 marks) (ii) The third term of a geometric progression, in which all the terms are positive, is $\frac{2}{3}$ and the sum of the first two terms is 2%. Find the first term, the common ratio and the fourth term of the progression. (10 marks) (i) Taking 1 inch = 1 unit on the x-axis and 1 inch = 2 units on the y-axis draw the graphs of $y = 4-x^2$ and 4y = 5x + 4 for values 5. of x from -3 to +3. (8 marks) (ii) From your graph, find: a- the range of values of x for which $4-x^2$ is greater than $\frac{2}{4}x+1$, (4 marks) b- the values of x for which $4-x^2=2.5$, (4 marks) c- the square root of 5.6. (4 marks)

Shamash Secondary School Conditional Examination, Sept. 1967

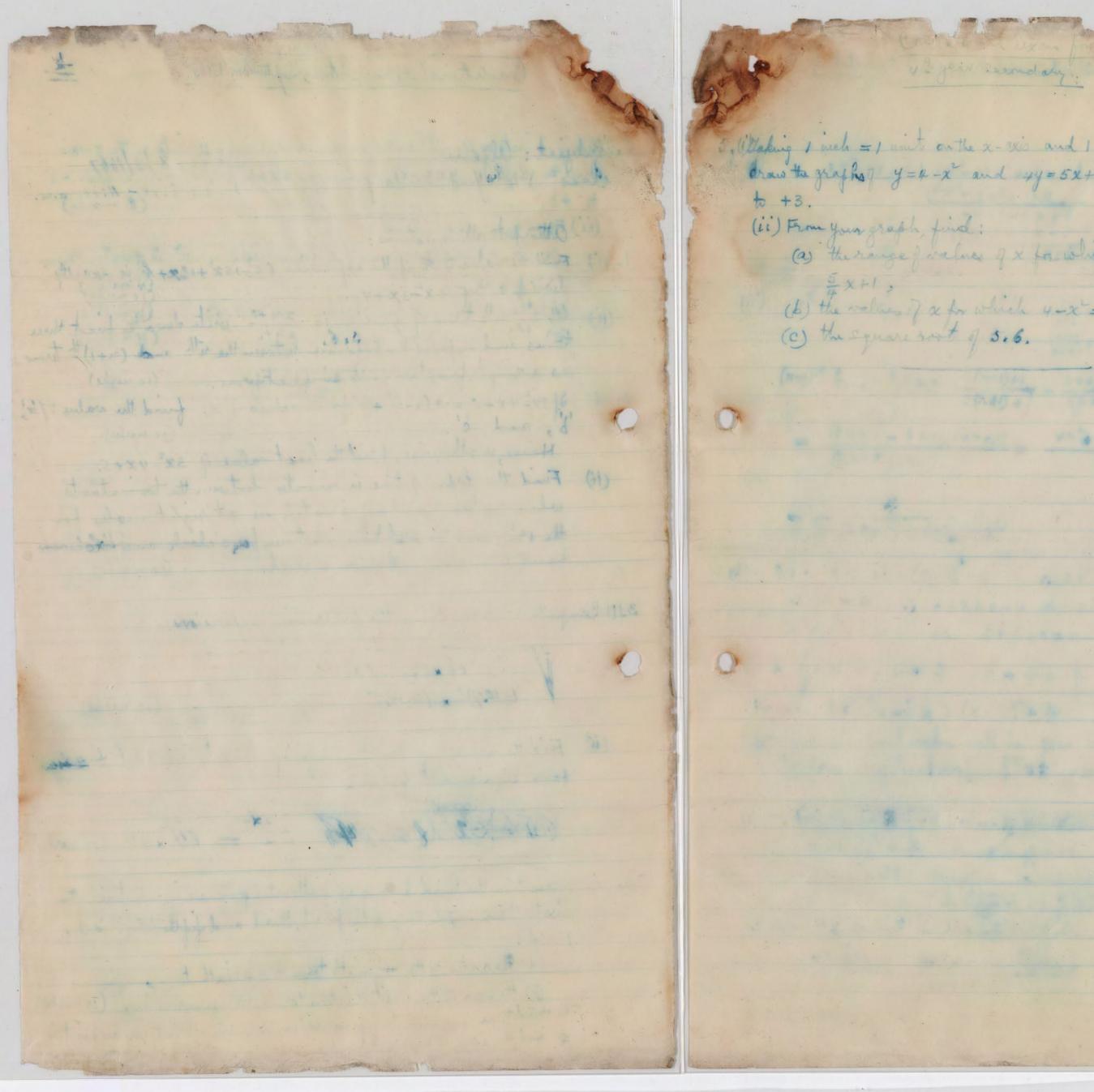
> Date: 8/9/1967 Time: 8:00 - 11:00 a.m.

subject: algebra Shaneah Sacondery School School State alass : 4 the year Sundary inte opinie interes Subject Sleepro attempt all questions: Attemp ils innets The same of standing of a in the expression by the standing of high the Timile by 2x-3x+4 Tellers S. L Alt mith them as a I a do er gr to ballen the fifth of to entitle its tot statistic . Attatist is the it's in this way in 1.19 M. 201 b, and i Honorit of other stand the long the long of the ter eine sollt eine sollt fie ertein southiche an eine von allen iche state fielt iche sollt eine s is the off (1) Comute by hoge their the forrowing agent and A deal 15 that is the the the set is the set of the set (admin or) (Sto: 4)2 & ch. our P 3.11 Compute it.) read the security of a train the following addition correct, to read 64 à "48 a ST 1 200 12°04 # Cro 2131 [1] Thies times the third thim of an arithmetic propriention is twice the mathematic monitive terms is 9. (= 10.7) = x (4. +07) a) the recto of the much term to the sixth terms . (ii) it) The which term of a geometric progression; in which all the set and the set of the first two takes is 28. and the stabilit termi the connect said and the fourth tothe of the Si (d) maning t tandi - 1 ungt on the second manne and the time t guilt to the second se tal Treas gener de velues of a for side the de freeder then the b- the values of a for which and all 5 e the square rive of 526.

Conditional Examination, September 1967 Dates 8/3/1967 Trie: 5:00 - 11:00 ann. (i) Fuil the value of the expension 6x2-13x2+18x+ & is exactly write down the first three toms and appres to il filme between the rite and ("+1)th term as a single fraction in it simplicityoun (10 molls) O if 3x2 4x+5 = a (x-1) + c to ill values of x, find the value of x' Hence of otherwise, find the lest value of 3x2-4x+5. (11) Find the laps of the in minutes between the two instants when to two hands of a watch me at right males to the 12 and the self the letter for delock and the and his i chek. (omaile) a the following expression. +++ 41 12 Mg 32 = 64 x 40 (10 mert Three time the third tring an anthenetic progression ? with them . The sun of the print, third and fight the is 9. (a) the partie of the me winth town I are sixth to me (1) Heaving the last this then too my human in, (10 with



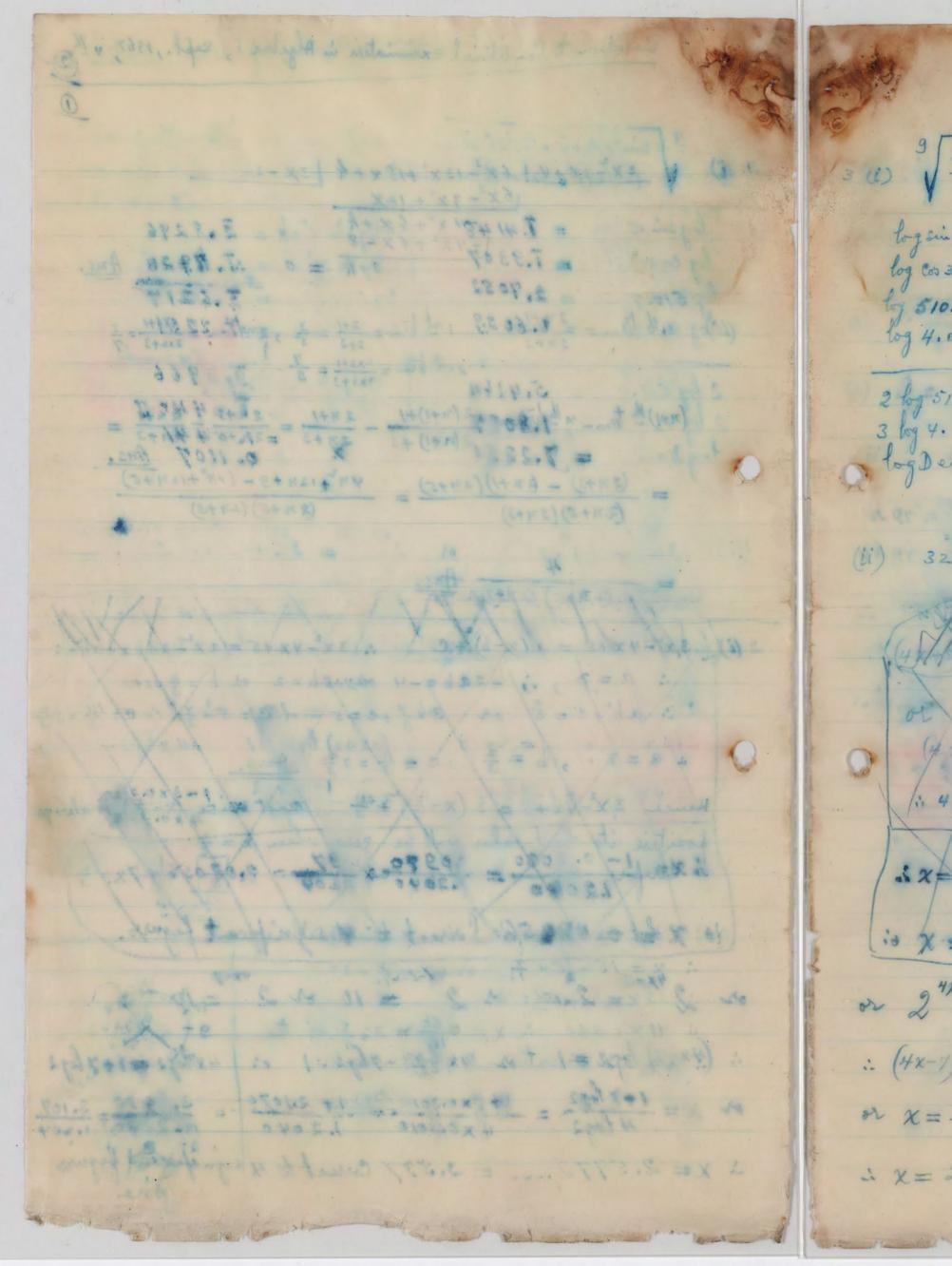
4 th year second aling . Fillaking 1 meh = 1 mint on the x- wis and 1 mich = 2 mints on the y-axis braw the graphs of y=4-x" and 4y=5x+4 for values of x from -3 to +3. (ii) From your graph find: (a) the range fraches of x facolich 4-x is greater than \$\frac{2}{7}\$ \$\text{ x+1}\$; (4 marks) (b) the values of x for which 4-x=2.5, (4 marks) (c) the square not of 5.6. (4 marks) and we are in 0 the second and the second second El The second se



4 2 years seemdaly ... 5 littaking 1 meh = 1 mints on the x-rxis and 1 meh = 2 mints on the y-axis draw the graphs of y=4-x" and 4y=5x+4 for values of x from -3 (8 monto) (a) the range of values of x for which y-x is greater than Extl. (4 marks) (b) the values of x for which 4-x=2.5, (4 marks) (c) the square root of 5.6. (4 marks) an we do not the The second state of the

The start have a light - - + x for the yet ages his to day the stick ment interaction to the - of the manufacture to and and a (Balter p) -Julian (a share we want of the factor of the standing the (c) Harmon d Sid, (4 minho) anima - anna an interiorent - i i bis the

Solution to Conditional examination in Algebra, sept., 1967, 4 the 0 1. (i) 2x-3x+4 6x3-13x2+18x+k 3x-2 $\frac{16x^{3}-9x^{2}+12x}{-4x^{2}+6x+k}$ $\frac{1-4x^{2}+6x+k}{1-4x^{2}+6x-8}$ 8+k=0 \therefore k=-8 Ans. (ii) ut tim = 2m+1 = : 1 at tim = 2+1 = 3 , 2mt = = 2x2+3 = 5 2+3 5, 2mt = 2x2+3 7 (n+1)th tom - n the lim = 2(n+1)+1 2(n+1)+3 $\frac{2n+1}{2n+3} = \frac{2n+3}{2n+5} - \frac{2n+1}{2n+3}$ $=\frac{(2n+3)^{2}-(2n+3)^{2}(2n+3)}{(2n+3)}=\frac{4n^{2}+12n+9-(4n^{2}+12n+5)}{(2n+3)(2n+3)}$ = (2-74+5) (2-71+2) Ans. 2(i) $3x^{2} + 4x + 5 = a(x-b) + C$: $3x^{2} - 4x + 5 = ax^{2} - 2abx + ab^{2} + c$: a= ? ; - 2ab = - 4 or 3b = 2 or b = = -: ab+== s or 3x 4+c=s of c=s-4 or c= 11=32 0 = a = 3, $b = \frac{2}{3}$, $c = \frac{11}{3} = 3\frac{2}{3}$ Ans. Hence 3x2-4x+5 = 3 (x - 3)2+ 4 and since (x - 3)2 is always. positive its test value will be gers when x = = in therefore the bield alies 3x - 4 mass is I when x = = (it) I hat the Watter gal in where & minister in for : X = 15 + 15 + 7 = x = X = 2 + 30 1 11 x = 3 60 ... x = 360 = 32 5 minte 9+ X 15. : X= 32 mintion May 2 - adres 1 12 1 10×147 3 xas to 5777 + Bist Themat

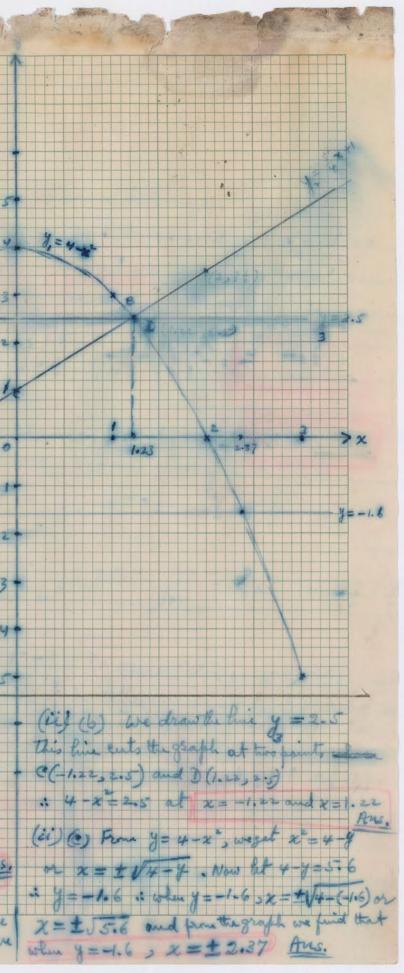


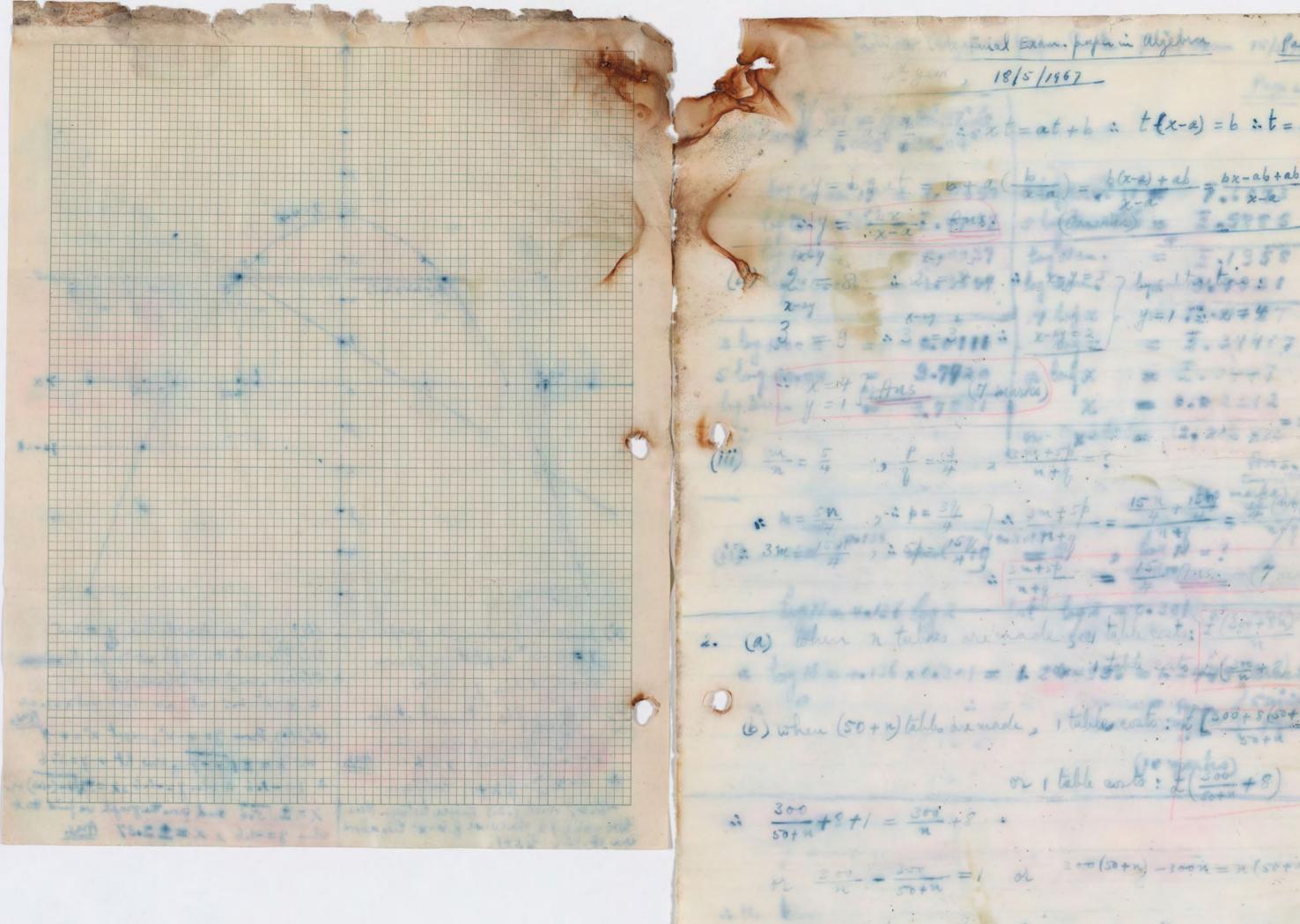
Solution to Conditional Exam in algebra, Sept. 1967 _ Conti. 2 9 Sin 15" 04 x 60331° 31 V (510.7) * (4.007) 3 log sin 15° 04 = 7.4148 2 log sim 15° 04 = 2.8296 log cos 31° 31 = T.9307 3 log to 31° 31 = T. 79 21 tog Num. = 2.6217 by 510.7 = 2,7082 log 4.007 = 0.6029 log Den. = 7. 2251 9 log x = 9.3966 2 6 510.7 = 5.4164 $h_{gx} = \overline{1.04407}$ = $\overline{1.0441}$ x = 0.1107 <u>Ans.</u> 3 bog 4.007 =+ 1.8087 o log Den. = 7.2251 (ii) 32 = 64.40 or $2^{5(2x-1)} = 2^{6x} + 0$ or $2^{5(2x+1)-6x} = 4$ Hall Hart of the state of the s or 2 - 2/x10 /or 2 = 10/ or 2 = 10 $\begin{array}{c} (4x+3) \ by 2 = by 1 \ (4x+3) \ by 2 = 1 \$ $x = \frac{1 - 0.9030}{1.2040} = \frac{0.0970}{1.2040} = \frac{97}{1.2040} = 0.0805647.$ is x = 0.08056 Correct to 4 significant figurs. or 2 4x-5 = 2x10 or 2 = 10 or 2 = 10 : (4x-7) log 2 = 1 or 4x log 2 - 7 log 2 = 1 or 4x log 2 = 1+7 log 2 or x = 1+7 log 2 = 1+ 1×0.3010 = 1+ 2.1070 = 3.1070 = 3.107 Hlog 2 = 4×0.3010 = 1.2040 = 1.2040 = 1.2040 = 1.204 ~ x = 2.5772 = 2.577 Correct to 4 significant figures

Britis stilling anight 15 1 tigt " and I go the good of all and a half searce X Starid) = 2 (K +54) + 24 minh = 24 minh = 24 minh = 24 minh and all the factory at the factor of an Anther an I all and and an log the bills 3 = 4.9 day - 1 2 = 1 - 7. 79 21 . 6400 = 2178E2 2+4 1 1 1 2 2 2 2 1 7 1 2 2 57 1 1 teine fat and interested and the state of the second Wetter water and the fait of the state · Tory Jacob a property and a state of the states C hard to the state of the stat 2x+ 14 0 9030 - 0.09370 - 97 - 0.0604 47 - 1 is x at an \$ 256 Count & q significent figuils. and the state of the and the state of the state : (4x-1) toga = 1 a 4x logs - 1/ga = 1 av 4x loga = 1+7 loga 82 X = 1+1692 = 1+1×0.2010 = 1+ 21070 = 3.1070 = 3.107 Hog2 = 4×0.2010 = 1+2040 = 1.2040 = 1.204 2 X = 2.5772 = 2.577 Consect to 4 sagastional fragens

4. (i) het a=12t term, d= Common difference " 3 (a+2d) = 2 (a+5d) n 3a+6d=2a+10d orga-4d=00 also a + (a+2d) + (a+4d)= 9 or 3a+6d=9 or [a+2d=3 ...2 $\therefore d=3 \therefore d=\frac{1}{2} \therefore a=2$ (a) $\therefore \frac{gth}{6} \frac{trm}{6} = \frac{a+8d}{a+5d} = \frac{2+4}{2+5} = \frac{6}{45} = \frac{12}{9} = \frac{4}{3} \frac{4ms}{12}$ (b) $S_{13} = \frac{n}{2} \{2a + (n-v)d\} = \frac{13}{2} \{2x2 + 12xt\} = \frac{13}{2} \{10\} = 65 \quad Ans. 2$ (ii) $l_3 = \frac{2}{3}$ $2 l_1 + l_2 = 2\frac{1}{2}$, $\alpha = ?$, r = ?, r = ? $an^{2} = \frac{2}{3} \int an^{2} = \frac{2}{3} \dots \oplus \int hy D where \frac{1}{1+1} = \frac{4}{3}x_{5}^{2} + \frac{4}{1+1} = \frac{4}{1+1}$ $a + ar = \frac{5}{2} \int a(1+1) = \frac{5}{2} \dots \oplus \int hy D where \frac{1}{1+1} = \frac{4}{3}x_{5}^{2} + \frac{4}{1+1} = \frac{4}{1+1}$ $4t + 4r = 15r^{2} \quad dr \quad 15r^{2} - 4r - 4 = 0 \quad or \quad (5r + 2)(3r - 2) = 0$ or $r = \frac{2}{3}$ and $r = -\frac{2}{3}$ (the latter value is to be discarded since all the terms of the progression are pointive, given for the progression and the progression are pointive, given for the progression are pointive and the progression are pointive, given for the progression are pointive. $:= \int a_{2} \left(\frac{1}{2}\right)^{2} = \frac{2}{3} \quad :: \quad \frac{2}{3}a = 1 \quad :: \quad a = \frac{3}{2} \quad :: \quad \frac{1}{2} = \frac{3}{2}\left(\frac{1}{2}\right)^{2} = \frac{4}{3}$ $a = \frac{3}{2}, v = \frac{3}{2}, l = \frac{4}{9}$ Ans. A company of the second of a solar granted by a there are is a west with a main of any interest and And the second s

let a = 1 at firm Ale Gramma deflerences 12/2 2/ 9 +52 the safed as a field of garith = 0 1 a. + 2 al = 3 2 a = # @ CONTRACTOR OF STREET 2(-1.22 2.5) (0) FHE.S the fetree to the so 104-11)+DS 10= 81-22ave = = --- - @ ? le Division a(HP)= 7 141 -4=0 at (5++2) (34-2) man - It file talks value is to be discarded . all the Tener of the Theoreman the Art the (4) From the talkerabire the graph of to to the y=4-x2 is platted as shown などうこうまでいいというとこうとう also the st. line 1 = + 2+1 The two graphs intracent at two Will the East you go to and some some some of multitude abaciepers are : x= -2.47 and x= 1.23 Ans, A Yainth & also yamlar 1x = \$ game (100) or Carrie As \$ x +1 between Not thing and prosting of the find that and the firest to them there of two values of x the curve of 4-x2 lies above when y marks , x = \$ 2007 And take all the second of the share wat 14×10 130,90 and the st. Pine Six+1





~ (n+150) (n-100) = in

2 n= 100 Ans.1

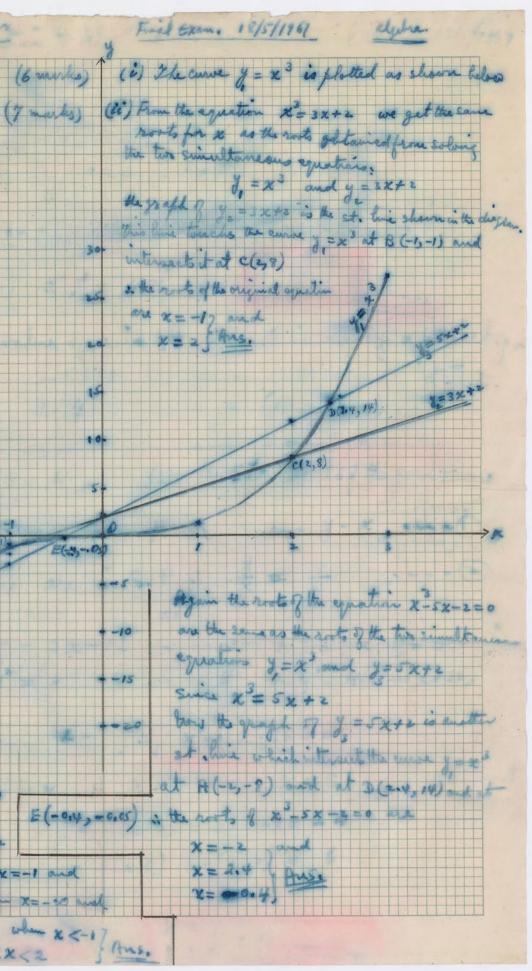
Final Exam. paper in algebra Page 1 18/5/1967_ $axt = at + b a t(x-a) = b a t = \frac{b}{x-a}$ $= \frac{bx-ab+ab}{x-a} = \frac{bx}{x-a}$ $\frac{b}{x-a} = \frac{b(x-a) + ab}{x-a}$ (Annonles) on 3 2 31,2 4=1 rivade for table cats: 21 or I table anto: 27300 200 (50+m) -300 m = n (50+m) or 15000 + 30/00 - 300 n = 10 + 50 n n 15000 -0 : n=-150 (to be discarded) in the cost of one table in case (a) is t(25+5) = t(3+5) = t(1)is in the set of one table in case (a) is t(250+5) = t(2+5) = t(1)

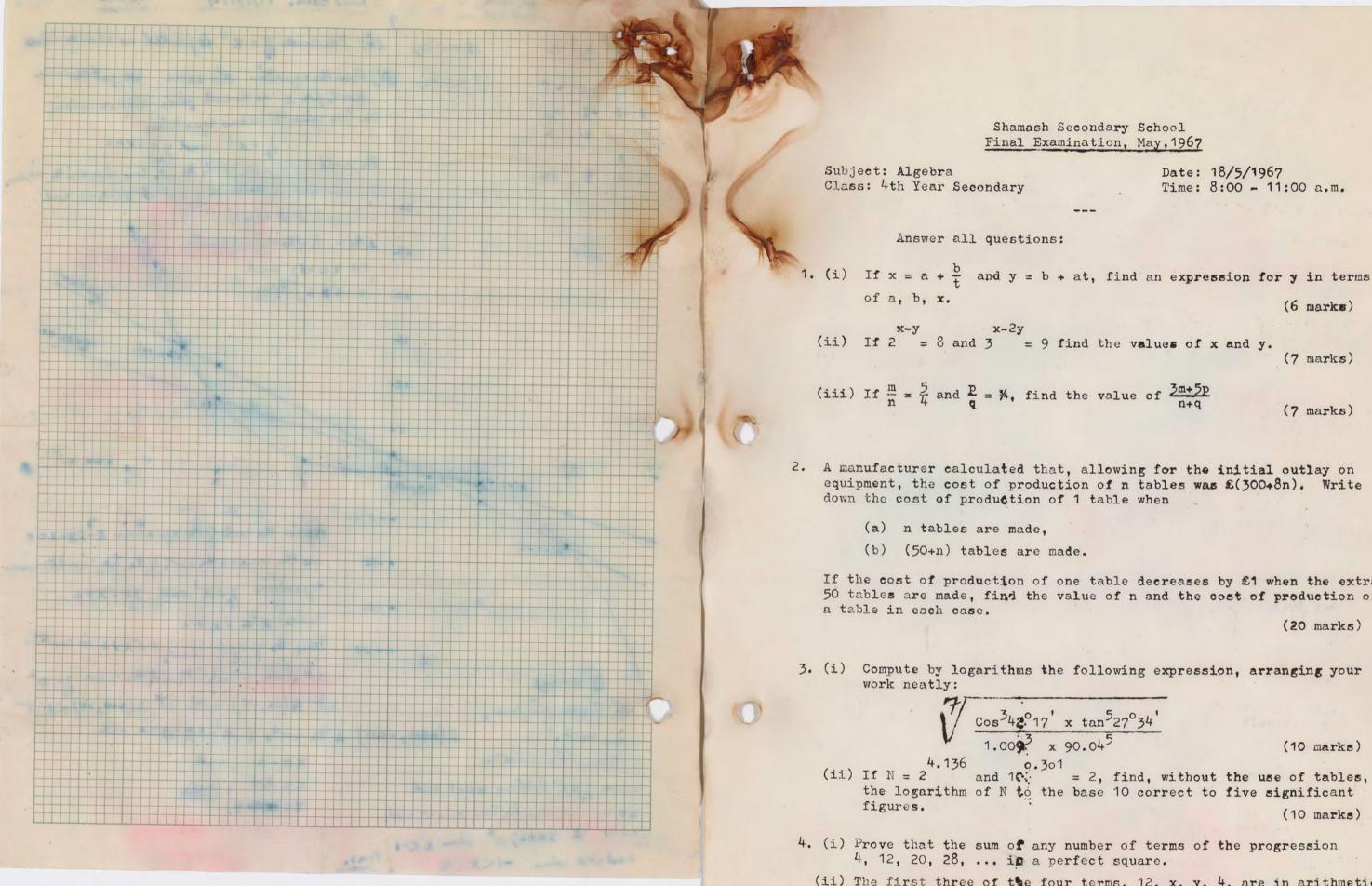
Koppleton - appleton internet maker berdanet of the Salution to algebra paper Cont. I Final 5xan 18/5/1967 18/5/1967 fage to Give frate is a ctal : t(x-a) = b = t = a 63 42 17 x tan 27° 34 a lidix=1 1.0093 - 90.045 , dar log an is = T. Tose store is the page is the F. CONS by Cos 42 17 = 1. 8691 3 by Cos 42 17 = 1.6073 log tan 27 34 = 1.7/97 5 log tan 27 34 = 2.5885 seturation a. F. 9992 chatmain E. 5985 04 4005 = Re0027 | fog Man. = 5.13 log 1.00 g = 0.0037 \$ 30.04 = 1.9544 log Den. -1. turkenlagning y log x = T2.41 The ter be パート デルモデオ 第丁 3 44 10 0 = " = E + BL + B 3 691.009 = 0.0111 1 = 200 or log x = 2 5 log 90.04 = 9.7920 5 tong davay = 9-7920 or balx = 2. 9-47 Concern T log Den. 9.7831 'x-2.9831 - march 20 12, 2, 2, 4 /or "xstat= 12, 212 × 10"; W - Wat an 2+ 215 410 In they are in the 1. is the of (10 marks) adres adding the transford and the state of the state of the --------(i) $N = 2^{4.136}$ and $10^{0.301} = 2$, $\log N = ?$ (11) log N = 4.136 log 2 but log 2 = 0.301 (2000) Wight = 40126 log 2 - but tag a = 0.301 in as the the state of the second " log N = 4.136 x 0.301 = 1.244936 = 1.2449 comett a log N = ++136 x 6+301 = 1 2 44438 = 1 2449 = 1 1 1 1 1 2 x = 4 or x = Ang. 1 5 anifron O a 10 11-5120 in the state and a second of the second of t . 0 = y = 2 (2-3) = 2 (2-6) = - 4 = [Figure then 2 5 4 ga size, and (o marks) at Color ? & ald 1 m 5 y = - 4 JA isit man g = 6 James L he (Inmarka) atte time are setting the Ho - Ho H The 12 - 20 12 30 67 4 or later - iski - ise i the ise - judein cooti to a dependence a some per part de la service 11 = 1 28 miles 000 = 34 What the state is and is in the state of the and the second of the second o

Laborton & relation that to the first three is better a + (1) ~ 4 , 12, 20, 28, ... Harris Harris in this progression a=4, d=8 in this programmin and , das 2 199 County = T. 8691 3 by Carpins is # F.6073 28 42. 28-24 28 F (4/4) 8 4 + 2 298 6 - 8 2 - 8 (Sx) 5-0033 4 - 1 3 - 1 - (37) 2.1358 i Plating to all of the print of 1 and the for in a Frank 1. & The = 0.0111 bay = 3.34462.0 2 00-11-0 2 5 209 00.04 = 9.7920 00 logx (1 minuthers 447 3.9831 × = 0.02212 (03) 12, 2, 7, 4 for nystet 12, 212, 212, 212. 12, x , y ale in the t. is x-12 = y - (so marks) a of a 23 gerset and 10 = 2 , bag N = ? from the second and the second and a formation allow - toget = 4.176 toget tut toget = 20, 22 (4 (at 10 x 40)) E 1600 = 4000 x 56361 = 1 8 4439 = 62449 x 62449 x 62449 -3)=0 2 x=4 2 2 = 2 = 0=(2--3)=2(2-6)=-4 - (-3)=-(-3) 0=(2-x)(x-2)=0 when x = 4 , y = 2 (x-6) = 2 (x-6) = - 4 where the = 4 (adress of (2-0) = - 2 = 1 = 1 = 1 when x = 9 , y = 2(x-6) = 2(3-6) = 6 C=x mites : x = 4 3 Ans. 1 x = 9 3 Ans. 2 y = -4 3 Ans. 1 y = 6 3 Ans. 2 y = -+ J Ann. y = E] Amere 20 (adrenoe) is the terms are within 12 + 43 4 : the terms are either 12, 4, -4, 4 the of the so is

Solution to Regebra paper Cont. Final Board 18/5/1967 (2) the largest the seas of $s s = \frac{n}{2} \left\{ 2x4 + (n-1)x8 \right\}$ or $s = \frac{n}{2} \left\{ 8 + 8n - 8 \right\}$ or $S = \frac{n}{2}(8n)$: $S = 4n^{2}$ or $S = (2n)^{2}$ Ans. .: Whatever the value of n is, the sum is a livays a perfect sque 3.79 (10 marks) Q.E.D. Oil 12, x, y, 4 from the statement of the question ; 12, x, y ais in A.P. . x-12= y-x also x, y, y are in G.P :: $\frac{1}{x} = \frac{4}{y}$ from eq. a: y = 2x-12 ---- @ sy= (2x-1)= 4(2 from eq. @: y = 4x - - - @ or y = 4(x - 12x + 36) $\therefore \#(x^2 - 12x + 36) = \#x = \therefore x^2 - 13x + 36 = 0$ $(\bigcirc : (x-4)(x-3) = 0 : x = 4 or x = 3$ (10 marks) 02 12, 3, 6, 4

to alge that parties " Softer the is algebra 181 /1467 (6 minutes (6) Marchine y = 2° is protect as change defends (6 minster) (I and (A) From the equation the sate as get the same all a 12, 20, 2 grantite a contant get alfere when 24 Add the -3 2 2 dy = H ANTIN P Jane . 121 the maple of the contract of the - 12+ 2x4 + (n-1)+2 de de - mage + En-2 8 12 27 . The last (19) to the stage of (RE) = 2 = there I provide = 2 = (2 K) And the of the is bilistice the value of as in gette filmer of in alifants a fartier 主要情報 (20 million) station to the question ; 12, 23 72 AB. 3-17-A gene are marken b ntog the spectric 2- 5x-200 A(-2-8) A AND STORY 4= 2x-13 (SCARNER) & E (SCARNE) 4 30 --15 13 K + 36 Sol Extended #= (22+2×1-22)# (marks) a sulles more the # X (No H # = X 1 (iii) Firm the drigeous O = (Base) (A - + SET) = O 2 (x x P 2 2 (+ 6) = 2 2 4 m - 2 ice the at. lis Withour H = 4 inter, x' the any = 4(x-6) = x (3-6) Concer of the when y = x3 habter x = -1 and x= 2 and also betizen x= - 20 mil Salas ay x=-1 = 3x+27x when x <-17 1221 B State & 包兰米 _3.2MA and also when -1<x<2 d = K with many pith and glished Ans. (adrianda). is the terms are within 12; 43 - 43 4 12, 33 6, 4 10





- Find x and y.

Final Examination, May, 1967

Date: 18/5/1967 Time: 8:00 - 11:00 a.m.

(6 marks) (7 marks) (7 marks)

equipment, the cost of production of n tables was £(300+8n). Write

If the cost of production of one table decreases by £1 when the extra 50 tables are made, find the value of n and the cost of production of

(20 marks)

(10 marks)

(10 marks)

(ii) The first three of the four terms, 12, x, y, 4, are in arithmetical progression and the last three are in geometrical progression.

(p.2)..

And the second second second

14. 14. 2X 1 - 151. . Sheraan Sucendary School

Subject: Algebre Subject: Algebre Slader Th Year Scroulary

" anim to a " own anoton for y in the total an back the net and an - X

· * g find the values of x and y. W w. etc.

A samular frame calculoted that, ellevant for the tastic outlay on sourcement is a selected of conduction of a famile for the stated outlay for stress the conduct of state is 1 points when (a) a fabilit are made. and the second s

(3040) toples are as de-1. 1. 1. 1. 198 T. 1.

4. (1) Ergen that the sum of any number of terms of the programment

(11) The Eirst three of the lour terme. 12, 2, 2, 5, ere in ortibustical grogression and the last three are in connerral progression.

a la serie

Algebra. 4th Year.

0

8.

0

5. (i) Draw the graph of $y = x^3$ from x = -3 to x=+3, using 1 inch for 1 unit on the x-axis and 1 inch for 10 units on the y-axis.

(ii) By drawing two straight-line graphs on the same diagram find the roots of each of the following equations correct to one decimal place.

> $x^3 = 3x+2$ (1) $x^{3}-5x-2=0$ (2)

(iii) Find from the resulting diagram the range of values of x for which (3x+2) is greater than x.

- p.2 -

18/5/67

(6 marks).

(7 marks)

(7 marks).

(1) Draw the graph of $y = x^2$ from x = -3 to x=+3, wring 1 inch for 1 unit on the x-axis and 1 inch for 10 units on the y-axis. . (s marka). (11) By drawing two straight-Mino graphs on the same adaption find the roote of each of the following squadies correct to one declarat place. SAXE STA (\$).....(2) (aanaa e) 17of values of a for which (Smid) in graator than a " a de ser antes delles

the same h

.

may 1967 Solution to 4th Quarter Boxance. + the your swintific 2 by tan 31° 19 = 7.7642 by Num. = 5 togo. 4007 = 1.6029 8821 7052 1. 10 50.72 = log sen. T. 9858 = 8. 48 34 = = 10.0895 g log x = 2.8988 8.5260 159× = 0.0 79 21 1/1014 1.9 574 34 = x 5 log Den. 7.921×102 8.48 34 -Aus 5650(749) (0.4007) * ton 37 13 50.72 × 6314° 34 ay they be a grange 0 Hus.

2961 Mary In the added that the 2 if in my b. I (ii) Suiplify: 200 the 1the star 24 Chert and the second and the second $\frac{(y+1)(y^2+y+1) - (y-1)(y^2-y+1)}{y^{\frac{1}{2}}(y^2-y+1)(y^2+y+1)} \stackrel{(y+1)}{=} \frac{(y+1)(y^2+1) - (y-1)(y^2-1)}{y^{\frac{1}{2}}(y^2-1)(y^3+1)}$ = 3 + y + y + y + y + 1 - (2 - 1 + y - y + y - 1) × y (y - 1) (y + 1) (4)(4) 1 Flage 14 D- 1464 14 14. E applied and a second of a second and and a second and a second a s y=(y-8+1)(8+8+1) y+y+2y=2-(y+y-y+2) The set and the set of the set 4 y2+2 y (8-1) (9+1) O y= (x=y+) (x=+y+1) + y = + 2y -x y (1-0) (++) (1+) (-++) +4 (2y +1) (mith) that i light + light + light + light >) \$ (2) (+1) 12 7 (40 har 19(4 1 - 1) gr = 1 (1-1+)(1++) W-allow and a for a lite there there there and $= \frac{(y-1)(y+1)}{y} = \frac{y-1}{y} = y - \frac{1}{y} + \frac{1}{y}$

Re-(1-2)(2-1)- (2-3)(1010) - 0 2/2 (2)(1-1) - (20/2 (2))(1-1)2 (4, R) Copper - 11200 3 (1 hours lice Bagg 2 . (22)(2, 1) 1 (-1, 2, 1-1-1-1)-1+ Kol+1+ 1+ 1+ 1 1° (1 + marillen) assisting and a start of the of t a x = - and by large fit for significant former here ha anter all all of (+++++) (++++) (++++) (++++) (++++) (++++) = (1+ 1/2) #2 (1+ 1/2 (1+ 1/2) 2 # (1+ 1/2) 2 # = - 1 - 1 = 1 - 1 = - (1+1) (1-1) =

xx x-1 x3 = 4 log 2 + 2x log 3 = (x-) log 4 2x log3 - x log + = - log + - log 2 Jaby 3-2x log2 = -2 log2 - log2 2x(log3-log2) = -3 log2 $x = -\frac{3\log 2}{2(\log_3 - \log_2)} = -\frac{3 \times 0.3010}{2(0.477/ - 0.3010)}$

: $\chi = -\frac{3 \times 0.3010}{2 \times 0.1761} = \frac{0.9030}{0.3522} = -2.5638...$ = $\chi = -2.564$ Correct to from significant figures.

Shamash Secondary School 4th Quarter Exam. May 5th, 1967

Subject: Mathematics Class: 4th Year Secondary

()

Date: 7/5/1967 Time: 8:00 - 9:30

1. Compute by logarithm the expression:

$$\frac{9}{\frac{(0.4007)^3 \text{ x } \tan^2 37^{\circ} 19^-}{50.72^5 \text{ x } \cos^3 14^{\circ} 34^-}}$$

(30 marks)

2. Simplify: (i)
$$\begin{pmatrix} 1+\frac{q}{p} \end{pmatrix}^{\frac{p}{p+q}} \div \sqrt{\frac{p}{\frac{x}{(x^{-1})^{-p}}}}$$

(20 marks)

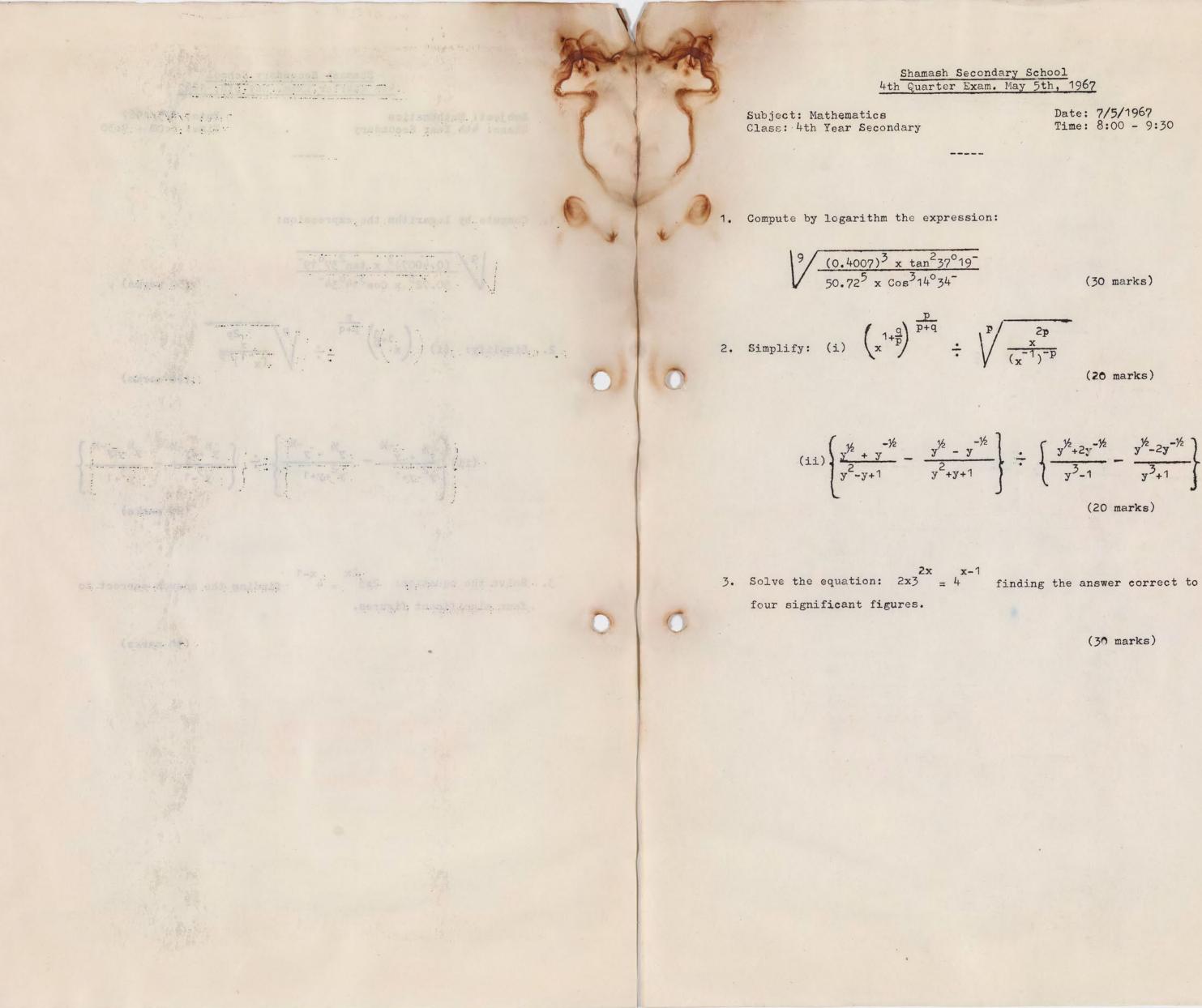
$$(ii)\left\{\frac{y^{1/2} + y^{-1/2}}{y^2 - y + 1} - \frac{y^{1/2} - y^{-1/2}}{y^2 + y + 1}\right\} \div \left\{\frac{y^{1/2} + 2y^{-1/2}}{y^3 - 1} - \frac{y^{1/2} - 2y^{-1/2}}{y^3 + 1}\right\}$$

$$(20 \text{ marks})$$

3. Solve the equation: $2x_3 = 4$ finding the answer correct to four significant figures.

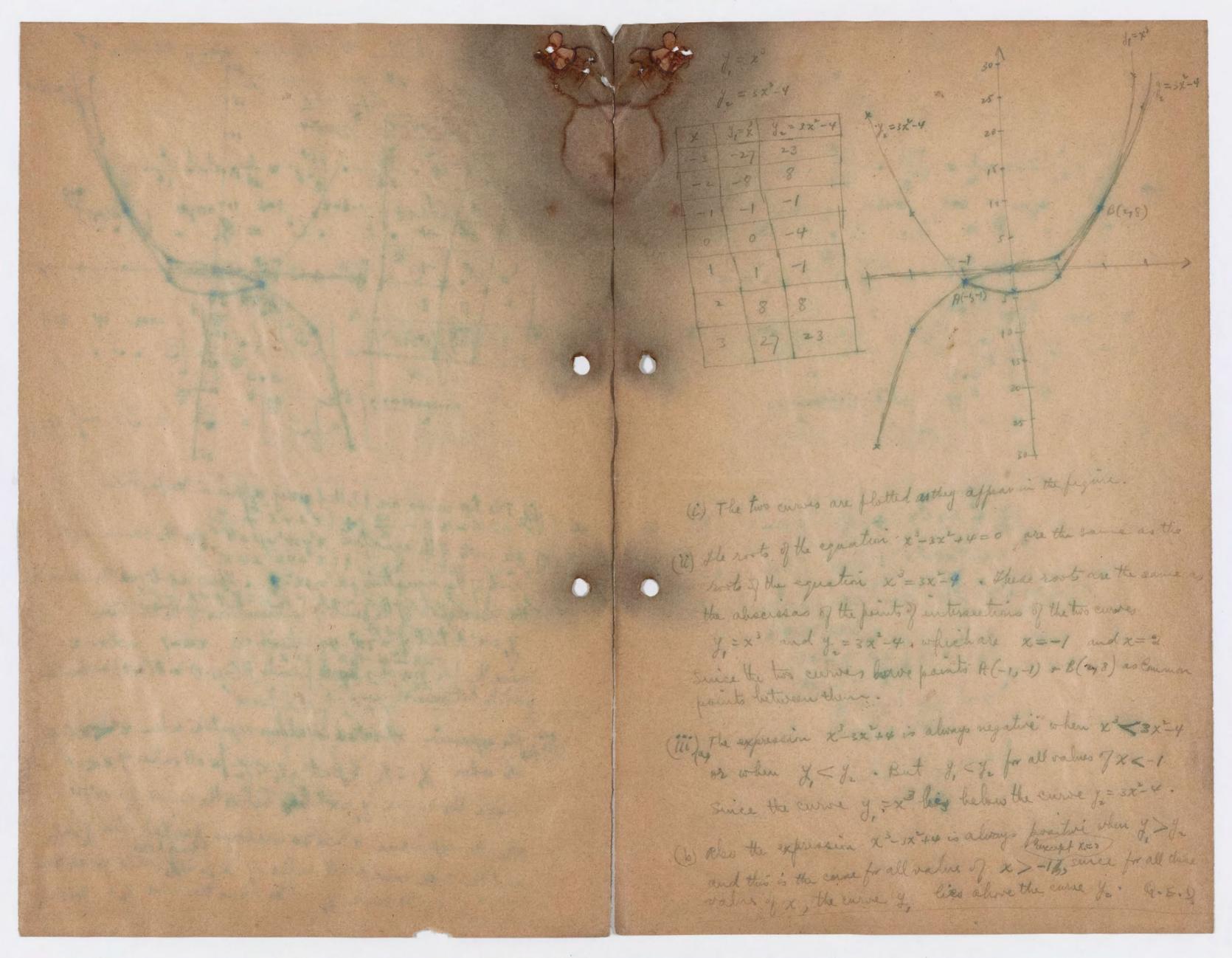
(30 marks)

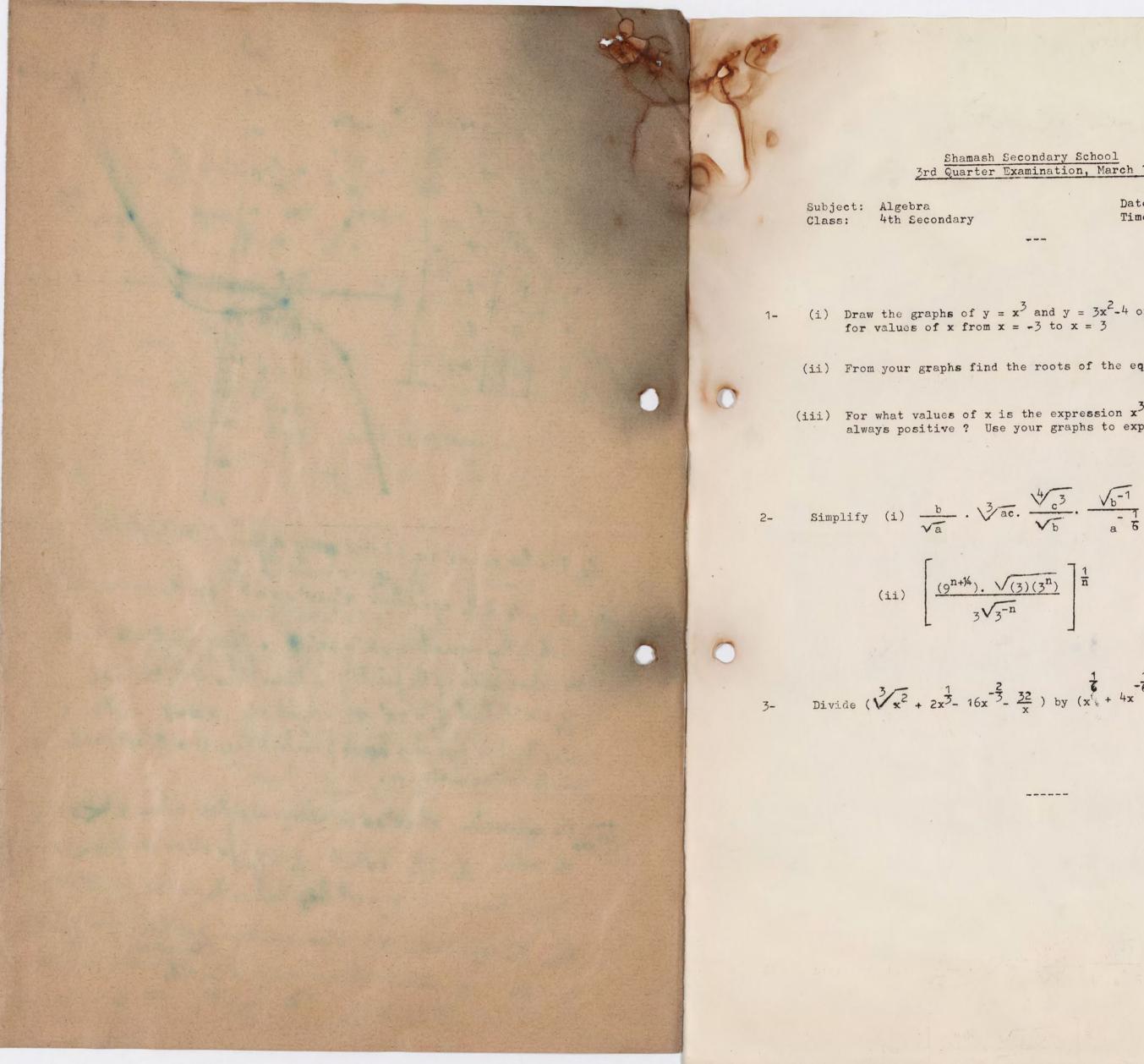
$$\frac{1}{2}$$



$$\overline{q}$$
 $\therefore \sqrt{\frac{p}{\frac{x}{(x^{-1})^{-p}}}}$

Solutions to 3rd Quarter Exam. in algebra sette year Geordary 20/3/1967 0a to 1 7/5/1967 21 (i) b. Jac. Ver VEr = b. at. a -3+2+1 2-1-1 4+3 12 0 - 6 - 0 12 a-2+3+6 1-1-2-2 $=a^{\circ}.b^{\circ}C^{\circ}=Vc^{\circ}=C^{\circ}Vc^{\circ}Ans.$ V Source a Coperty St - 2カチを (ii) 3 73 E pressor 15 4n+1+n+1+n-2 n = $\frac{4}{3} = 3 = 3 = 27$ Ans $3. \left(\sqrt[4]{x^2} + 2\chi - 16\chi - \frac{3}{\chi}\right) \div \left(\chi^{\frac{1}{6}} + 4\chi + \frac{4}{\sqrt{\chi}}\right)$ testine the equiption , and a set that a set of the second $(x^{\frac{1}{3}}+2x^{\frac{1}{2}}-16x^{-\frac{1}{3}}-32x^{-1})+(x^{\frac{1}{2}}+4x^{-\frac{1}{2}})$ $\frac{x^{\frac{1}{6}}+4x^{\frac{1}{2}}}{x^{\frac{1}{6}}+4x^{\frac{1}{2}}} = \frac{x^{\frac{1}{6}}+2x^{\frac{1}{6}}-16x^{-\frac{1}{2}}}{x^{\frac{1}{6}}+4x^{\frac{1}{6}}-8x^{\frac{1}{2}}}$ 0 -2x - 4-16x - 3 - 32x -2x - 8x H+8x = 16x = 32x H+16x = +16x = 32x -8x - 32x - 32x - 32x - -8x - -8x - -32x - -32x - -32x





Shamash Secondary School 3rd Quarter Examination, March 1967. Date: 20/3/1967 Time: 8:30 - 10:00 a.m. ---(i) Draw the graphs of $y = x^3$ and $y = 3x^2-4$ on the same axes, for values of x from x = -3 to x = 3(20 marks) (ii) From your graphs find the roots of the equation $x^3-3x^2+4=0$ (15 marks). (iii) For what values of x is the expression x^3-3x^2+4 always negative? always positive ? Use your graphs to explain why. (15 marks) (15 marks)

(15 marks)

$$\frac{1}{3} = \frac{32}{x}$$
) by (x + 4x + $\frac{1}{\sqrt{x}}$)

(20 marks)

a production of the second s

(20, not find

the prove graphs find the roots of the roots and any more root in the and the market

and the little and dame the 7.

Shamash Secondary School Mid-Year Examination, Feb. 1967

Subject: Algebra Class: 4th Year, Secondary

Attempt all questions:

- 1. Revolve into factors:
 - (i) $3x^2 (4a+2b)x + a^2 + 2ab$
 - (ii) $8x^{3}-27y^{3}+z^{3}+18xyz$
- the value of $x^4 + x^2y^2 + y^4$.
- of 'b' if a=2 and s=3.

(ii) Solve the two simultaneous equations:

 $x^{2}+4y^{2}+80 = 15x+30y$ (1) xy = 6 (2)

4. Two men started at the same time to meet each other from points which were 26 miles apart. If one took 41/2 minutes longer than the other to walk a mile, and they met 2 hours after starting, find the speed of each in miles per hour.

Date: 6/2/1967 Time: 8:30 - 11:30 a.m.

(6 marks)

(6 ")

(iii) Divide $(a^2+b^2+c^2)(a+1)+(2ab-2ac)(a+1)-2abc-2bc$ by (a+1)and express the quotient as a perfect square. (8 marks)

2. (i) If x+y = 2a and x-y=2b, find in the shortest possible way, (10 marks)

(ii) Find the value of p which will make the expression $2x^3 + px^2 - 5x + 2$ divisible by (x+2) and find the other two factors.

(10 marks)

3. (i) A man can row upstream at 'a' miles an hour and downstream at 'b' miles an hour. He rows up to a certain point and then returns to his starting point, and finds that his average speed is 's' miles an hour for the double journey. Express each of the letters in terms of the other two. Find the value

(10 marks)

(10 marks)

(20 marks)

(cont'd.p.2)...

The day was a large target CARA-LAN IN COMPANY A - 12-12

a forster his sont a The second second second second second

a the strange of the second to

tore see 25 of the sy Long by st. 105 10 Rat (18 and 12 to X (1) x)

(((8)))

(Tritler) #45ette-6.05ette-10ette-6.05ette-5.00) / defter of state (221) the second of the second second

(to the proved of)

(22) 20 million et pouter et la fille dette a policite des loss (22) Telestelles excel en dat dan de loss totat e des anno

To desire a serie of the transformed in difference of the point of the point of the point of the point of the series of the desire of the d S. . Super States & F. M. S. .

and the him parameter but for had not the Logical (1)

(Shimmen) & man

(K. L. Barker Barker galante

(in the meaning

A. S. S. Sourcererererere and apprication of the sinks of the strephone for the second sec

Algebro. 4th Secon

5. y-axis.

equations

1	1	x	j,	y,
		- 2	- 11	9
		-1		-7
		0	-3	-15
		1/2		-16
	0	1		-15
		2	5	-7
		3		9
-		4		33
	-1	-	14	

5-61365 .

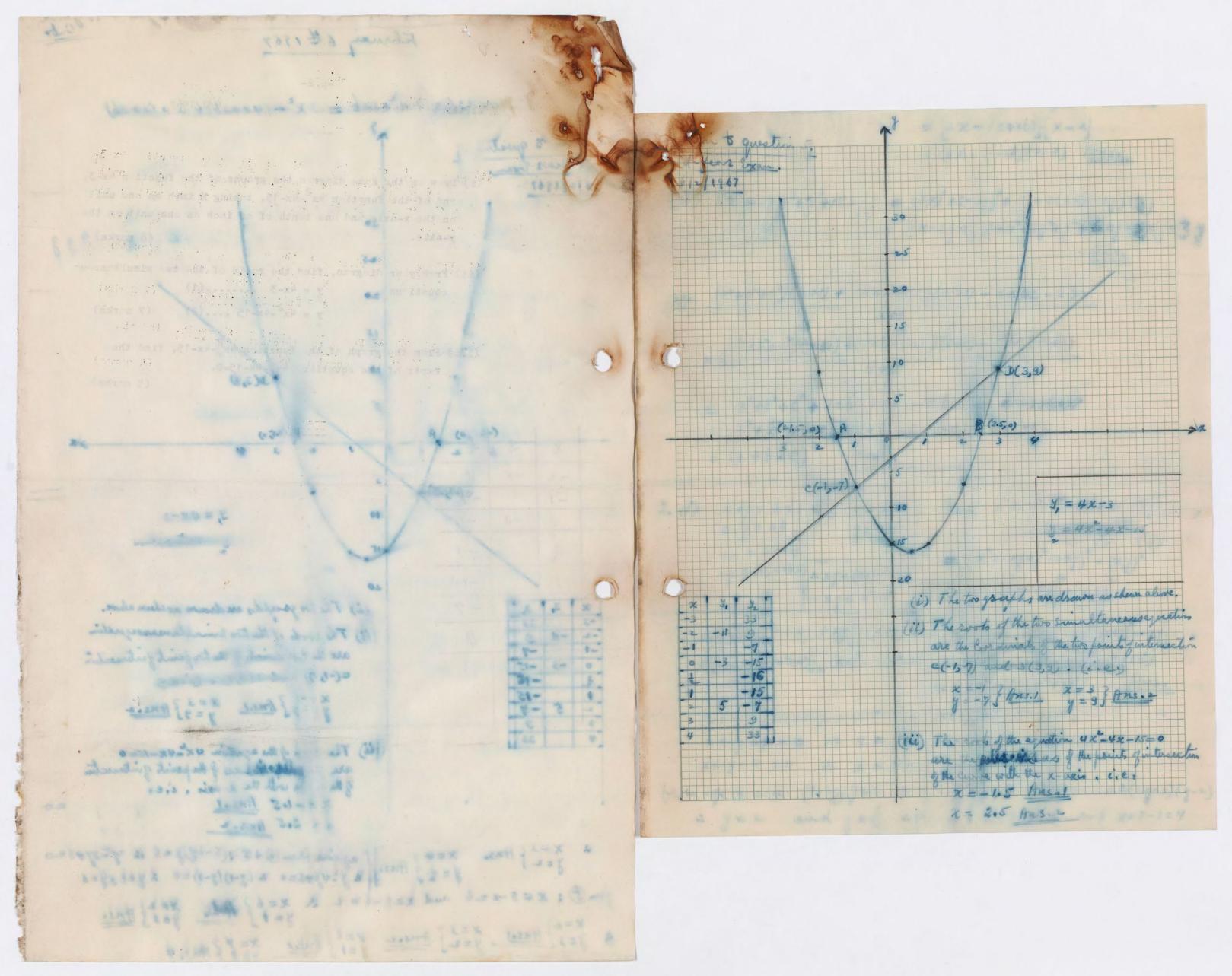
(i) Draw on the same diagram the graphs of the function 4x-3, and of the function $4x^2-4x-15$, taking ½ inch as one unit on the x-axis and one tenth of an inch as one unit on the (8 marks)

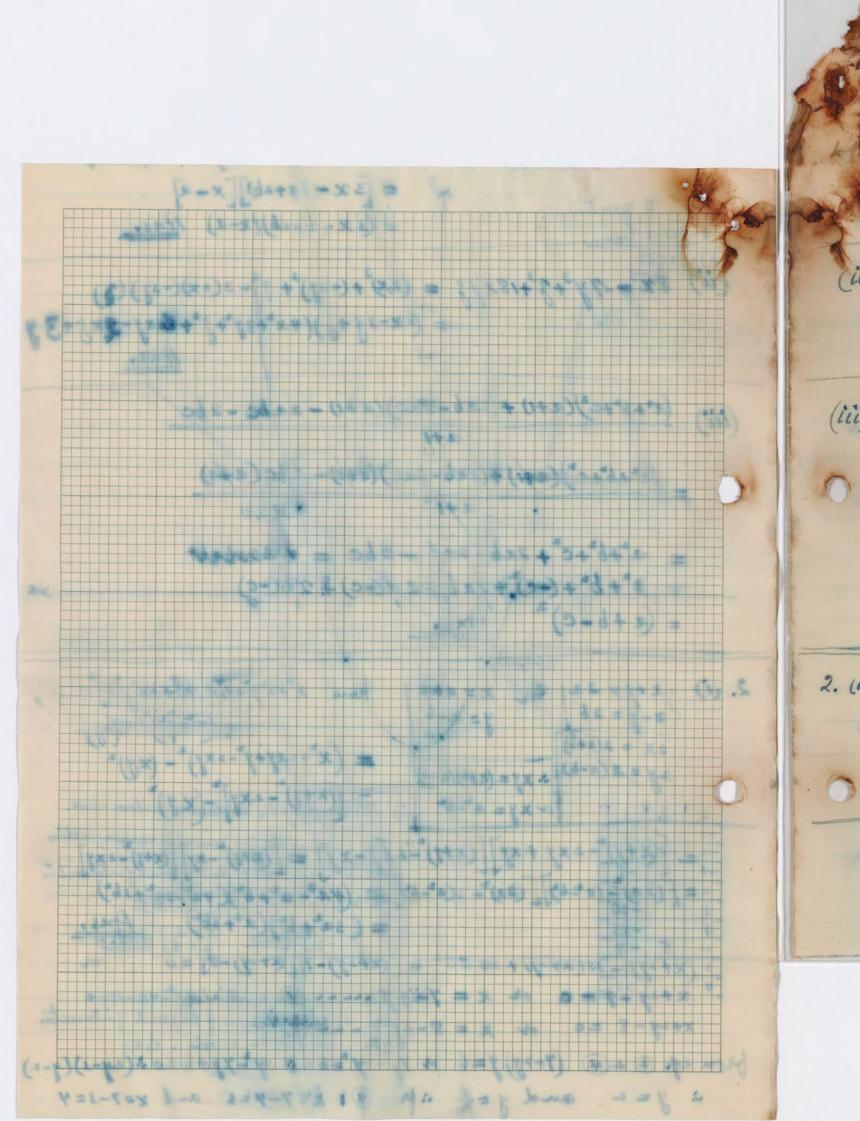
(ii) From your diagram, find the roots of the two simultaneous y = 4x - 3(1) $y = 4x^2 - 4x - 15 \dots (2)$ (7 marks)

But a light and a the state of

(iii) From the graph of the function $4x^2-4x-15$, find the roots of the equation $4x^2 - 4x - 15 = 0$.

(5 marks)





February 6th 1967 $-(4a+2b)x + a^{2}+2ab = 3x^{2} - (4a+2b)x + a(a+2b)$ $= [3\chi - (a+2b)][\chi - a]$ = (3x-a-2b)(x-a) 17ns. $8\chi^{3} + 27\gamma^{3} + 3^{3} + 18\chi\gamma^{2} = (2\chi)^{3} + (-3\gamma)^{3} + 3^{3} - 3(2\chi)(-3\gamma)(3)$ = (2x-3y+3)(4x+9y+3+6xy-2x3+3y3 $(a^2+b^2+c^2)(a+1) + (2ab-2ac)(a+1) - 2abc - 2bc$ (iii) a"+b"+e")(af)+(2ab-2ac)(a+1)-2bc(a+1) a2+62+c2+2a6-2ac -2bc = 20202000+60 $a^{2}+b^{2}+(-c)^{2}+2ab+2a(-c)+2b(-c)$ $=(a+b-c)^2$ Ans. 5x-y=26 y= 2-0 $= (x^{2} + y^{2})^{2} - (xy)^{2}$ = $(x^{2} + xy)^{2} - (xy)^{2}$ = $[(x + y)^{2} - 2xy]^{2} - (xy)^{2}$ 2x = 2(a+b) 2y = 2(a-b) = xy = (a+b)(a-b)or xy = a-6 $= [(x+y)^{2} - 2xy + xy][(x+y)^{2} - 2xy - xy] = [(x+y)^{2} - xy][(x+y)^{2} - 3xy].$ = [(2a)^{2} - (a^{2}-b^{2})][(2a)^{2} - 3(a^{2}-b^{2})] = (4a^{2} - a^{2} + b^{2})(4a^{2} - 3a^{2} + 3b^{2}) = (3a2+62)(22+362) Ans.

Eleptafafa -(1) 出行的成功的 要(我的了 # 如此年(1-4) 第一日的第一日的 # 2 (2+2) (2x²) (2x²+px²-5x+2) + (x+2) = 2x²+ (p-4)x - 2p+3 + 4p-4 x+2 2x3+px2-5x+2 2x2+(p-4)x -2p+3 = 4p-4=0 : p=1 2x3+4x2 (p-4)x2-5x+2 (2) (Re=) (2 +) = (2 +) + (2 (p-4) x2+2(p-4) x R E+ Statt + 4 + 1 + + 2 (2+ 1 2-2) = 2+ 2 + (2+ 1 - 2) (2 p+3)-3 + 2 (apto) x - 4pto 42-4 = (anisher = 0 (apto) x - 4pto (apto) x - 4pto (apto) + (ab-2nc)(apt) = (xpex)(x-1) * (apto) + (ab-2nc)(apt) = (xpex)(x-1) * (b) de abor de (x-1) + (ab-2nc)(apt) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(apt) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(apt) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(apt) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(apt) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(apt) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(x-1) + (ab) = (xpex)(x-1)(x-1) * (b) de abor de (x-1) + (ab-2nc)(x-1) + (ab) = (xpex)(x-1)(x-1) * (b) de (xpex)(x-1) + (xpex)(x-1)(x-1)(x-1) * (b) de (xpex)(x-1) + (xpex)(x-1)(x-1) * (b) de (xpex)(x-1)(x-1) + (xpex)(x-1)(x-1) * (b) de (xpex)(x-1)(x-1)(x-1) * (b) de (xpex)(x-1)(x-1)(x-1) * (-2/0+3) x - 4/0+6 4/0-4 = Remainder = 0 () = that y using up the at to apple ? be the metan burd in times ? to it that (A) bot a sate of the bar and the bar and the share on a labor should be all = (a+b-c) these is a start (a-d+a) = 2. (i) a compar 2 and as not a collect a soft and the the and a strain the second also bides a hab be dead in diated a sab to ge (and a second a sec That b= as = 2x3 = 6 = 6 Ans. 4 (3) - Hart all and a contract of a single of a lot and the state of the second and and = [(2 4) - (a & f) the Cast - a (table as + 10) + 3 mid the sh 2"+4xx/+1"+80 = 15x+20 + 24 - 0 (2+0) + 20 = 10 (x+1) + 20 = 10 (x+2y) - 15(x+2y) + 56=0 : [(x+2y)-7][(x+2y)-8]=0 x+2y-7=0 or x=7-2y @ also x+2y-8=0 or x=8-2y---- 5

Solutions to Mid-Jean Exam in Algebra Cont. page 2. 6/2/1967 " Preginal expression = $2x^{3}+x^{2}-5x+2 =$ = [x+2][2x+(p-4)x-2p+3] $=(x+2)(2x^{2}-3x+1) =$ = (x+z)(zx-1)(x-1) =: tother is p=1 and the other two factors are (2 x-1) and (x-1) these ()) Rate growing upstream = a mp. 4. I let the distance rowed each way = & mile " " " downstream = b m. p.h. I: $\frac{x}{a} + \frac{x}{b} = \frac{2x}{s}$ or $\frac{1}{a} + \frac{1}{b} = \frac{2}{3}$ h bs + as = 2ab as 2ab - as = bs a (2b - 3) = bs $p_2 a = \frac{bs}{2b-s'} \quad Ans. 1$ also 2ba - 6\$ = a,\$: b(2a-5) = a,\$: b = as Aus. 2 2a-5 also bs + as = 2ab is s'(a+b) = 2ab is $s' = \frac{2ab}{a+b}$ Ans. 3. (ii) (x2+492+80=15/ +30y ---- 0) i from @: 4xy=24 xy=6 ...- @) add eq. @+3 and yougets x + 4 x y + y + 80 = 15 x + 30 y + 24 or (x+2) + 80 = 15 (x+2y) + 24 from eq. @ +(4) (7-24) y=6 or 7y-24=6 is 2y2-7y+6=0:(2y-3)(y-2)=0 " y=2 and y== "from @ : x=7-4=3 and x=7-3=4 * x=37 Ans. x=4 } Ans. || again from @+@):(8-24) y=6 is 242-84+6=0 y=2 } Hns. || * y249+3=0 = (y-1)(y-3)=0 : y=1, y=3 from (3: x = 8 - 2 = 6 and x = 8 - 6 = 2 in x = 6] And x = 2] Ans. y=1] Malin y=3] Ans. A y=3 Ans. x=3 Ans. x=6 Ans. x=4 Ans. 4 y=3 Ans. y=2 Ans. y=1 Ans. y=3 Ans. 4

(a they at they at (xeld) as an + (a-1) x - 4+1 the 44-4 plat & Skyte me - I & Magues appression = 2x3+x2-5x+2 = X (- 1) = + x (-) to persite in the second of the second in the second of th - aproprie - the an - and -4 & - 4 = Remander = 0 = (x+2)(2-2-1)(x-1) = " to the state . per and the state too facthe and (24) good (20) 1 Rate & carrier upstream = a my to 7 tat the distance reveal and ways & sing in the reading of the the weather of the state of the state of the JEG-SOX= 372-92° - 22° - 119× + 1 20° - 22 a trimming by by as a ab - you add any the match of by . dearsha unpertain a b (2a-2)= as a lo = as three a also bracks traph in Stard = rab a g = rab from s. 0 10 Just 6= 0.5 = 2x2 = 5 = 6 Ans. 4 (2) X+4/ +80 = 15K +20 J - -- Rost Mer = 08+ 1++ x (2) Xy=6 add ag. @ + @ and yought no set (betx) SI = 0 54 (bet 2) no be + host 31 = 0 3+2 h+ (x++ x no = [s-(he+x)][x-(he+x)] v v= 25 + (he+x)st - (he+x) x + 24 - 1 = 0 - 22 K = 7 - 2 f mon = (a) - abou (2) - - - Pr- S to X to be & - het X and (and) (and a get the of a get hand as a she with the second and i general years in the first and year is the & X=2 phase xer hase against han so side and a sperger and : x = 8 - a = 6 and x = 2 - 1 = 2 - 2 = x + 6 = 2 = x : Bail A jes Hussi yer husse X= 1 huss X= 4 Ani. 4

February 6th 1967. I the speed of A he x m. p. h. B. J. m. B. J. m.p.h. 2x+2y=26 or x+y=13 € y= 13-x ---- 0 also A walks one mile in 1 hrs or in 60 minutes B is is in from the is the second the 40(y-x)=3x y ---- 2 Substitute from () in (2): 40 (13-2x) = 3x(13-x) or : x= 5 m.p.h. 3 Ans. y= 8 m.p.h 3 Ans.

lution to Final Exan, anestring in algebra to 45 year cout. page 3. A B B * 60 - 60 = 4 \$ or 20 - 20 = 3 or 40y - 40x = 3xy or $520 - 80X = 39x - 3x^2$ or $3x^2 - 119x + 520 = 0$ or $(3\chi - 10\psi)(\chi - 5) = 0$ or $\chi = 5$ and $\chi = \frac{10\psi}{3} = 3\psi \frac{2}{3}$ i y=13-x ory=13-5=8 or y=13-34 = = -21 = madmissihle

is there another in algebra to 4 th gen Februar 6th 1969. Build & C - 7 Subject: Algebra Class: 4th Year, Secondary or X+ 1=13 10-2 ----Attempt all questions: stan A wethersone will in to has on in 60 months 1. Revolve into factors: a a so a flass a a go minto (i) $3x^2 - (4a+2b)x + a^2 + 2ab$ (ii) $8x^3 - 27y^3 + z^3 + 18xyz$ 22 404-40X = 2XY 1-X) = 5X 4 abituto from (in (): 40 (13-2X) = 3X (13-X) or the value of $x + x^2y^2 + y^4$. 520-80X= 39X-3X or 3x -119X+530=0 (3x -toy)(x-3) = 0 or x = 5 and x = 104 = 34 = かやりますすうできる ひかりますっかやき こ - 27 き いんのないのなん x-81 = 1 to 5 mapping Aras. = 3. 10 of 'b' if a=2 and s=3. (ii) Solve the two simultaneous equations: $x^{2}+4y^{2}+80 = 15x+30y$ (1) xy = 6 (2) find the speed of each in miles per hour.

Shamash Secondary School Mid-Year Examination, Feb. 1967

> Date: 6/2/1967 Time: 8:30 - 11:30 a.m.

(6 marks)

(6 ")

(iii) Divide $(a^2+b^2+c^2)(a+1)+(2ab-2ac)(a+1)-2abc-2bc$ by (a+1) and express the quotient as a perfect square. (8 marks)

2. (i) If x+y = 2a and x-y=2b, find in the shortest possible way,

(10 marks)

(ii) Find the value of p which will make the expression $2x^3 + px^2 - 5x + 2$ divisible by (x+2) and find the other two factors.

(10 marks)

3. (i) A man can row upstream at 'a' miles an hour and downstream at 'b' miles an hour. He rows up to a certain point and then returns to his starting point, and finds that his average speed is 's' miles an hour for the double journey. Express each of the letters in terms of the other two. Find the value

(10 marks)

(10 marks)

4. Two men started at the same time to meet each other from points which were 26 miles apart. If one took 41/2 minutos longer than the other to walk a mile, and they met 2 hours after starting,

(20 marks)

(cont'd.p.2)...

The formation of the network of the second 232 . The second attents of the C.

The free terms in a an and the matter mostly they all

and that have not the bar we

Total Standard Standard Star 23

and the second and the second second second

the second second state of the second second

The is addition in the first of and approximate the second as the second second second second in-

A. Principal and a star on x-y-ally, and the first of the star and a light of the

the second of th in the spinitum for internet of the Dire doids of the active to the test of the and a contrastion with marking and a mark have (bark) whe attained at 12

Cardin Theory and Start (14) fixe th dec clevitioned at which (10) Charles and so of shalls

and a second a second as a second

and state in the second state of the second lands and when the state of the second first second first se

(introduction)

3.71

Algebro. 4th Secondery,

5. y-axis.

> (ii) From your diagram, find the roots of the two simultaneous y = 4x - 3(1) equations $v = 4x^2 - 4x - 15 \dots (2)$ (7 marks)

-p, 2----

6/2/1967

(i) Draw on the same diagram the graphs of the function 4x-3, and of the function $4x^2-4x-15$, taking ½ inch as one unit on the x-axis and one tenth of an inch as one unit on the

(8 marks)

(iii) From the graph of the function $4x^2-4x-15$, find the roots of the equation $4x^2 - 4x - 15 = 0$.

(5 marks)

in the state of the second

(A) .S

also $5bx_3 + 5b_3 = 3ay - 3axy = : 5b_3(x+y) = 3ay(1-x)$: $b = \frac{3ay}{5} \cdot \frac{1-x}{1+x}$ Ans. 2 (b) $\frac{a}{b} = k$ 20 (a) $\chi = \frac{y}{y+1}$ and $y = \frac{a-z}{2}$ Park that $\chi(y+z) + \frac{y}{y} + \frac{y}{x} = a$ i the expression = and at 2 + 20-4 + and = 20 = 20 = 20 1-1+4× = 0.7(x-1) 01+x = 01-015× : 4×=12 : ×== Ans. and a series of the series of the series

and Quarter Exam. algebra, & the year pages. (a) x = 3ay-5bz : 3axy+5bxz= say=5bz : 3ay-3axy=5bzz=5bzz=5bz * 3 ay (1-x) = 563 (x+1) = a = 560 1+x Ans.1 $\chi = \frac{\frac{a-2}{2}}{\frac{a-2}{2} + 1} = \frac{a-2}{a} + \frac{a-2}$ * the expression x (1+2) + 2 + = 2-2 (2-2 + 2) + 2-2 $= \frac{a^{2} + 4}{2a} + \frac{2}{2} = \frac{a^{2} - 4 + 4 + a^{2}}{2a} = \frac{2a^{2}}{aa} = \frac{a}{8} \frac{1}{8} \frac{1}{1$ multiply the first fraction (both human + Dene) by 5 + the second fraction by 10., we get $\frac{5 - 7\chi}{1 + 5\chi} = \frac{7(\chi - 1)}{1 - 5\chi} \Rightarrow (5 - 7\chi) (1 - 5\chi) = 7(1 + 5\chi)(\chi - 1)$ · 5 - 32 × + 35x = 7 (5 × - 4x - 1) or 35 × - 32 × + 5= 35 × - 28x - 7

Solutions to 2nd Quarter Exam in algebra Cult to that the train the state of the care of the strate of the sector 27/12/1966 21/1-11965 100/0980 page 1. 30,5552 alte able - the standard a standard - the standards 6 - 5(6-2) 31-620 6-20 3 ag(1-x) = Sty (x+1) = 2 = 5th 1+x Hans 5 (31-6%) = 155 - 30% alise abre at by a march a state (the as of the abre a state at a state a sta 156-31% 156-31% 186-36%-30+5% 31-6% (by ATT & an 4275 - an # & Than - 9 from x at - 5 (by ATT & an 186-06 - cont & Thank - 9 from - 4mater $\frac{155 - 30 \times}{156 - 31 \times} = 1 \times 155 - 30 \times = 156 \times - 31 \times^{2}$: 31x - 186 x + 155 = 0 : x2-6x+5=0 as to S 6 31X - 186 X +185 - 6 . 6 X - 1 1 + 5 - 6 : (x-1)(x-5)=0 : x=1 + x=5 Ans. Nos mathe all the the set of the all a factor of the set of the set and a fe the state of the state of the the state of the s (b) 3x3+x+4=8x : 3x3+x-8x+4=0 when x=1, then 3+1-8+4=0 : (x-1) is a factor atten and them a the state of the light watter to - 3x3+x2-8x+4= + = + (2 + x (x+1) (2+1) 3x (x-1)++x(x-1)-+(x-1) is the set and the set and the state of the state of a the set of a state of $: 3x^{3} + x^{2} - 8x + 4 = (x - 1)(3x^{2} + 4x - 4) = (x - 1)(3x - 2)(x + 2) = 0$ and a state a state - the state of the state and a start to a start " X=1 , x=-2, x== Ans. The A - 18-444 - 302 - 10 (c) x y + 192 = 28xy ----0 10 - AL LING H - MAN K. x+y = 8 ---- @ - 11 1 1 1 and a state and the state of th 100 x"y"= 28 x y + 192 = 0 : (xy-16)(xy-12)=0 & xy = 16 or xy = 12. the string start thousand the stige by so. , waget squaring eq. (), "x"+2xy+y"=64 ~ () x"+2xy+y"=64 - agets , a suggest and the state of the state of the -4xy = -48 or -4xy = -64 - Rett. S. al-SX " X - 2xy + y2 = 16 / on x - 2xy + y2 = 0 (x-y)=16 (x-y)=0 : S. + the Mit 252 - 7 (5 x - 4 x - 1 - 1 - 1 - 1 - 1 - 2 + 2 + 2 + 2 + 2 + 2 + - 7 - 2 + - 7 - - 7 - - 7 x-y=0 x-y=±4 is applied the x = 2 Ans. x - 4 6 1 Two x+y=8 || x+y=8 || x+y=8 || x+y=8 || x-y=0 ||BUR PARK LARS Illivia and the second in the grade 2x=12 /2x=4 /2x=8 and have to the particular the and the and $\chi = 6$ Ans A $\chi = 2$ Ans 2 $\chi = 4$ Ans 3 $\gamma = 2$ Ans A $\gamma = 6$ M $\gamma = 4$ $\gamma = 4$ M M S S

set had you - the that the work to and he to the total the water = 0861 Part 14 act have had a state of the state to the state of the sta $\sum_{k=1}^{n} \frac{155 - 20x}{112 + 31x} = x \quad (155 - 20x = 156 x - 31x)$ a 11x Million = + x = they (& +1-8+4= 0 a left) and factor 5 32 3 F. H = 1 (E) (W & RAW / RAW 3 K (E)) ANA (K-1) -4(2-1) 1 3 X + X - 3 X + 4 - (X - 3) (3 + 4 + X - 4) = (2 - 4) (3 + 2) (3 + 2) = (2 - 4) (3 + 2) = (2 + and the set of some and interest in the set of the set to xgrassrypipedo & experiences againing a free there. HA- = 1 KH- 1 1 = HA = 1 KH+ = 1KH+ - 6 O'to lingula · K- wyell - 16 (~ X- xyelle 0 11 0= y-x || x=y+x || H=y-x and X= 6) Ansel y= 6) Ansel x= 4) Ansel

To Let the time when he started be & minute after 3 $x = 15 + \frac{15}{12}$ is 12x = 180 + xis 1/x = 180 is $x = \frac{180}{11} = 16\frac{4}{11}$ minutes * 11 y = 300 = y = 300 = 27 3 minute after five the second second

Solutions to and another Examin Algebra Cut. 27/12/1966 the the horse = no. I have taken by fast train to cover the distance yould . a let it mapshe be the speed of the slower train to travel distance zin · ===+t-= xg=vy+txv = v(++tx)=x3in the <u>x3</u> is the difference between speed = (x-v) in p. h. is diff between the two speeds = x - $\frac{x_3}{y+tx} = \frac{x_9+tx^2-x_3}{tx+y} = \frac{tx+x(3-3)}{tx+y}$ Let the time when he finished = y minuts after five 10 10 12 2 2 mil The bagan at 16 " min after 3, and ended at 272 min particle. Re walked for appried of this 10 the minutes Ans. = (5 hrs. 27 " min - 3 hrs. 16 " min) & (20 marks)

Sabuticio to 24 la alter Examin Applana Cuba mas a the of here to part their to even the distance y silve. It right the the openal of the slower train . is I have a tog has taken by showed train to based distances 一日本日 一日 「おう = ひょうがんでき こ いしょちゃ) モズ ?~ is at = A the difference between green an (x-a) to for the to diff: tulition the two speeds = x - x3 - x + tx - x8 - tx + xC+3 121 left the time when he started be & minute after 3 1 × = 15 + A & 12× = 180+× ~ 11x = 130 4 x = 180 = #6 4 minute 4005 12/21 20 13 = 005 the bagon at 16 for min after 3, and ended at with to walked to appred of alive partition to = (5 hors, at & anie a 3 has 16 th and) & to

Shamash Secondary School Date: 27/12/1966 Time: 11:00 - 12:30 morning. (8 marks) (8 marks) (8 marks) (8 marks) (8 marks) (10marks) (10 marks) (20 marks) (20 marks)

2nd Quarter Examination, December, 1966 All questions are to be attempted.

(b) Solve $3x^3 + x^2 + 4 = 8x$

h) Solve the scortco.

Subject: Algebra Class: 4th Scientific Year 1. (a) Given that $x = \frac{3ay - 5bz}{3ay + 5bz}$; make a, b respectively the subject of the formula. (b) If $\frac{a}{b} = k$, express $\frac{4a - 5b}{\sqrt{18a^2 - 4b^2}}$ in terms of k. 2. (a) Prove that $x(y+2) + \frac{x}{y} + \frac{y}{x}$ is equal to a, if $x = \frac{y}{y+1}$ and $y = \frac{a-2}{2}$ (b) Solve the equation $\frac{1-1.4x}{0.2+x} = \frac{0.7(x-1)}{0.1-0.5x}$ 3. (a) Solve $\frac{5}{6-\frac{5}{6-\frac{5}{6-x}}} = x$ (c) Solve $x^2y^2 + 192 = 28xy$ (1) x +y = 8(2) 4. A fast train travelling at x miles an hour takes t hours less to travel y miles than a slower one takes ') travel z miles, Find the difference between their speeds in terms of X , y and z. 5. 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 · coincidents between five and six o'clock. What was the time when he started, and how long did he walk ?

a han y and a

an started for a walk when the hands of his watch ware, coincident

all questions are to be attempted (ii) simplify by removing brackets 35 3x-44 - to 3x- 5(7x-47) +8(y-2x)

3. (i) Solve the equation 2.4 = 0.24 = 0.16x - 7.6

I the is overtaking him?

equals that of "" hoy ??

Shamash Secondary behord 1st Quester manination, Hovember, 1966 lijest: Algebra Date: 8/11/1966 Lass: 4th Secondary, Scientific Section. Time: 12:00 - 1:30 p.m. 1. (i) given Jxy+8x = 3 Solve each x37 8 in terms of the other (6 masks) (8 marks) Reporte into two factors (if possible) each of the following up Dat-bt @ a+b @ ab-b6 @ at+b" (12 mulles) (ii) write down by inspection the quotient of (2a) -6b) (4 marks) (9 mastes) (ii) Walking of timbes on hour, I start 25 hours after a ad where page is strills an hour. How long shall 8 marks) 4-(i) How many days will "" men take to now "" acres if "b" house can more "y" areres in "d" days and each man's with (9 marles) (ii) Find the square root of 16 x + 10 x + y + 8x + 4 y 2 + 4 y + 1 showing your steps neatly. (8 marks)

Sha walk Soundary Caboot 1 at Questor samiation, Hovenhar 1966. struct: He son a - 2x + Ba - 26 sate : states to bat whether the source is a that was no in - and a and - 2x file - 26 prate and it (+ a), and it all water the to the attempted (Binally) 1. (4) Biene Novergon if & realist all all in the of the it merceness of range to the to interior will the surface of the range of Entriche with the second by and the second of the second o · x har x fo such . Sitter the top factor (if provide) and the falled and (if Bat By at 10 and a she of the second and the second of the (it) mut down by unprotion the quater top for all - (all gall the under 3. (i) whether water 2.4 = 0.29 = 0.16x - NOS of the all and (i) . E (ii) to the of when and an alive of the ball bill have And the second which is the internet of the second of the to (2) Have many days will "a" men take sit a second the prover of the " a field tan man "y" agree in "I" days and each man (when and () (ii) Frid the Excert find (ii) (alcon 3)

torms of x and y .

(20 marks)

5. (i) Dwide 3x-2x+ 8x-26 by x-2. Hence find the value of B' that makes the expression. 3x - 2x + Bx - 26 partorable into (x-2), and find the other factor. (9 marks) (1) R man can Swim at & meph in still water . His spind rate mereasis y moph. when he sween's with the current, and decree in his time to swin 2 miles with the current and 2 miles against the current is 3 hours . Find a formale for 3 in (7 marks) 6. Give the English equivalent to the following: ١. اعلد ندمة وعدرورية and and sold and sell sight and بالم عنارية العد 0. + to التوه و to لفره ۲. افغا اللدرانط اللبي ۲. نتر الرود م لمفالی اطخالاه المان ٨٠ الوقع المتار ٩٢٦ وي صحود لوتي الوث اردام معنونة ع 1. esterie and an a fin the date that goes the public of the state of the

Was mixe case Harper find the value of R. that made the aprender Ex- 2x + Ex- 26 prestrally into (xe) yourd fin

(ii) and among come into a maple in FIP with I is don't with ing in marking when the samining will the customent, and all " makeles " interior associate of the current - " it allower alive a har to the attention aliver of minute at maint and an sind the survey is a famo . Find a longer of the 6. four the English of minister to the fallowing

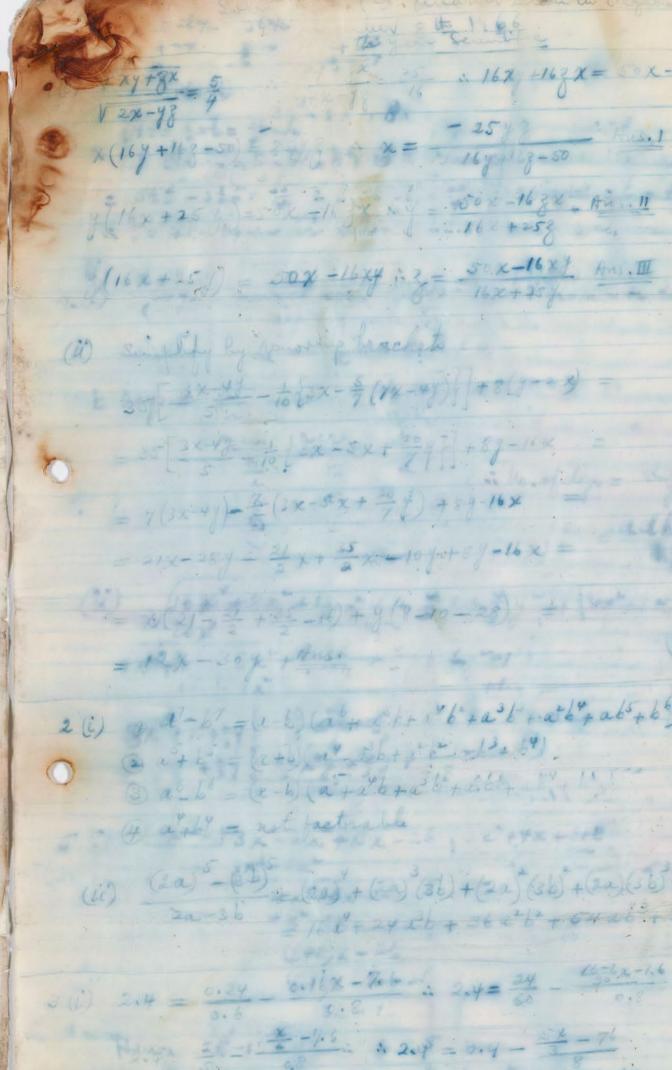
1 he was I dot a start with the senter the states and the state of the states

V. in there a both and the and Localling Pir & area les de la lette anita the to belles

12 112 36 1/20 the second and the second

A A STATE AND A a termina para para de ser

Att in



1 1 1 = 36 Hars.

: 16x +162x = 50x -2540 - 2549 - Fis.1 (2minho) --- 16× +25% (16x+25) = JOX -16xy : 2 = 50x-16xy Ans. III (2 marks) = 2/x - 28 y = 21 x + 35 x = 10 y = 16 x = 2 (i) 0, a - b' = (1-b) (a + c' + 1" b' + a b' + a b' + a b' + b') mil. 3 2a-36 - 5 16 1 24 26 + 36 26 + 54 26 + 64 26 + 64 26 - 6 1 1 28 4 - - - AFEL de 12 · Contraction

t stappen 3tappe Clark fil i Har all X= 1-24 (t) (st) AB = 5x7 = 35mile (advire) to the 25 - 25 dist (smale) The state has the ready 1-20 Let throws = time taken A # 18 to reach c : 55t - 32t = 35 : t(52 - 32) = 35 : 2t = 35 : t = 35 hoo.学生がなきのそこのないないないなる きってきにしたれ 。 at= 43 hours or 4 hours 22.5 minuts. Ans. (9 mertile) is the party trans on general without and a way and alan i the second and the xa 4. (i) boys men acres days I man - the high b (9 warte b hoys = b men apart the to cheat of (Bub) La y d fin ho. of days = da. the in to stan - der. - adbar Jayo the - 1160 (i) 16x +8x +16 24 + 3 1 + 4 y 2 +1 4x +1 + 3 4 Hus (a) the second of the state of the second (a) 8x+1 8x+ 3x2y+ 3y+ 3y++1 Bx + 2 + 5 y 16 × y + 5 y + 5 y -+ 5 y 16 × y + 5 y + 5 y -+ 5 y 16 × y + 5 y -1 x y + y y + 3 y - ... (i) x-2 3x -2x + Bx - 26 3x + 4x + 8+B 5 9 1 2 - 13 x - - x + 1 x - - 1 1 - 2 + 4 x + 600 - 3x2-6x2 + 3 = 1 - - - (St) 4x++Bx-26 (8+B)x - 26 12-213482 (8+B)x-16-2B - ... Sittle - State ... Hence 28-10=0 : B=5 Hence Statistic + State my - - - - - - - and the set Hence the attenfactor is the quotient 3 x + 4x+8+18 or House the attentation . He gest to the particular the 3x + 4x+8+5 or UN OTSTRATING 3x +4x+13 trus. 22 +++++ 12 lines the xy xy of the service as in the service of the the

to status state & in a day but Shama & Gendary School and que ter Examination, December 1966 The barning again and to lijeet : Algeba and : 27/12/1966 Time: 11:00-12:30 had in the for the stand which a fait a get which \$ Phone all the not to mach channes man all all and all questions are to be attinhted a to 4 & channe on it fines 22.5 mints. May a g to avere that a = 3=y-5b3 ; make a, b respectively to subject 11the france a. Co mark and the second to second the second and the (b) 4 &= t, express 4 a-sto interno gt. (fat, and all and all and (a) Prove that x (y +2) + " + " is equal to a, if the hards = the existence of a read a for the h = y +1 and y = y -2 (Brarka) (Bubles) (b) Schrothe equation 1-1.48 = 0.7(2-2) (b) Schrothe equation 1-1.48 = 0.7(2-2) (at 10) -0.52 (9 marks 3. (a) Solve 5 = x y · (B mesta) 1+"1+ [2x"+ 3x"+ 2]+ 5]+ 5]+ 5. (b) solve 3x3+x2+4=8x mint (10 marshall BX オントキャー 「アンドキリキギリキギリー」 OC) solve $x^2 g^2 + 192 = 25 x y \dots (0)$ $x + y = 8 \dots (2)$ 4. A fast train travelling at & miles an hour takes & hours ha to travel y milio than a clawer are takes to trail a milio. Find the difference between their speeds interms & E20 marks - HEFERING IS I THE THE THE THE A America allana x st, y and z. Arts & and Ba (8+6) - 20 5. A man stated for a walk when the hands I his watch are conneident tudismist a ce a print of a not a good of the print of the between the and your c'clock. When he finicked, the hands about the property and the and were a in Bincidents hetween five & six o'clock. What weste Alimin that we been in this is a for men he storted, and have long did he walk? in the the is and in suther the the (20 marks) (advant at the = 8 at the weather - 1 as 8 = the - 1 x

I men to the adary bot Bate appealing 66 Times 11:00 - 12220 min Same that an appropriate i vale as I requiring All the set of the set of the " have to we that the for the to could be a by the the (Bushes) Constant and a starter North Marchen in the second My how and VE - MA 'NY - YA' AN - MA () = 1+ 4. A fail think to all a will a will a fail the of Transford with a state one taken print the adjourse to marine that the sector of Rote & and go 5. A new total for a work when the boundary his watch and it to the " he and your d'alande, liter to being a Simil at hat a fine six of loss. I what would he the low and have did a galle (salvan all

andting exam Sept. 1960 14: + Q=3, 20=9 In A PDR . PR = covers . PQ = 5 Core 56° = DP= tansy . DP=5 tan 34° AP = tom 5 20 :. HP = 5 Cay 52" HD= BQ= DP+ HP= 5 low 34°+5 low 32° = 5 (tou 34°+ tous2) from AAQ D, tand = 5 : tan D = 5 : tan D = 5 (am 34°+ tan 52°) : tan D = tan 34°+ tan 52° - 56= 56 = 5 × 1.2062 = 6.0310 miles Ins.) BQ = 5 (lan 34°+ lan 52°) = 5 (0. 6745 + 1.7799) = 5 × 1.9544 = 19.7720 mils france ton 0 = 1 = 1 = 1 = 1 = 1 = 0.5/165 = 0.5/17 Corbect to 4 che opt. 2 U= 27° 6 Ans. 3 Q.5. 2x04 = 143°28 · Lxot = 143° 28 = 71° 44 In LOXT J3.2 = Cos 71° 44 \$ 07 = 3.2 Coope 44 = 3.2 See 7/44 $t OT = 3.2 \times 3.1903 = 10.2089 bis = 10.21 in$ $in A O XB, <math>\frac{XB}{3.2} = \sin 71^{\circ}44$ is $XB = 3.2 \sin 71^{\circ}44$ in x y = 2 x B = 2 x 3.2 Sin 71° 44 = 6.4 Sin 71° 46 = 6.4 x 0.9496 = 6.07744 in = 6.08 in Correct to





-y) (x+y) (x+y=) (x+y) (x+y Ans. (8 mark $\frac{\chi^2 - \iota \chi + \iota}{\chi(\iota - \chi)} + \frac{\iota \chi - \iota}{\chi(\iota - \chi)}$ 2-----(X-ixte X(2-x) x(2-x) = x (x-y)2 V X-4x+4) (x(2-x)) A grandt 7:40 = A Grandel of the ills Ans. 1. (1 mark) 7:50 -> 10 mp.k. + 7:00 = 10 x15 = 51 mile the Ans. 1 (tenado) is 75 02 1735 5 martia AB TH 4 20-15-11-10 it-co 6+3+67 land if + + + + + manitures and - 21+ 56+12

ster so

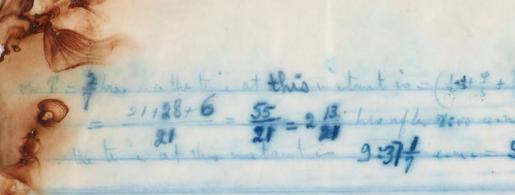
1+2 and the state R-1 x (2-3) - + L . L+x+ - x are I'll Ka-sh (x-sh)

- att take a transfer a the or to and the (x-x) x (x x) x (x-x)x X (2 - X) 1 - x - x - = h = m

Hacher y in the Chiefe and 10 + trave - there is the manufacture with second on the second states the second state of the second state

2.5. --

and the part of the the ter 11+12 +16+ John W. R.Y.



3 (i) log sin 17"14 = T. 4717 269 Sin 1714 = 2,9434 3kg 1.003 = 0.0036 log15.04 = 1. 1772 Jog Den = 5. \$ 896

(ii) (byx) - 4/2yx+4=0

(9% = 7 + 1) 8×12 - 104 (100 92 = 75). The last # number Or (2 10 4 5/0 (10 1815 = 320);). Here the h

or 13 n= 4719 = 4718 = 363 = hor of terms

fistight = gg fouth is a ar = gg ar : ar = gg a + ans = - 286 or a (1+ n3) = - 286 - --inding: art = 49 alitely = = 286 or 3 r + 26 r + 3 = 0 in that + enor r= -3 satisfies the eque ~ (++3) is a paietor of L+15. ~ (++3) (9+-++3)=0 the second

. the time at this water tis - (1+ + +) his after / a am - (1+ + + =) 9:37 9:37 ann. I the measured (10 monto) log 1.003 = 0.0012 log Non = 5.9262 log Den = 5.8860 8k-y - 7.0370 1/+ x = 1. 129625 = 1. 1296 Correct to ydee = x = 0.1348 Ans. (10 marles · (logx-2)=0 à logi=a 4(i) Retrong 22 and 4025 the blit number of it is divided by 13 is 1 = a + (n-1)d a 4810 = 100 + in 10 + 10 - 104 + 10 == == == (a+l) = 363 (104+4810) = 363 + 4914= 363 × 2457 = 891 891 Ans, fromandes : 12 9 : 9+9r³ = 20 and in v=-3. for the art-33 is su=33 is a = 11 the

0 +88+10

in prive T winned & Switting = Egylo alal. Fraquet and instances there and 58 860 - + 1 m = 1, 1972 1 - Dam = 5, # 2 95 TT = I JULI - I.I. STE 0. 1347 fine

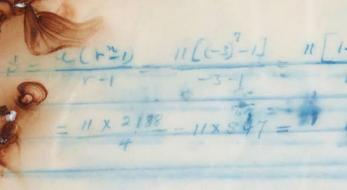
all ingine where a start - stort - stort

a start and a start of the star Cala. the same the second to the read & generation

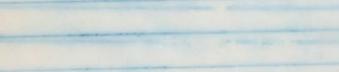
IT - sut _____ it is a provide -IVALESS AND AND - LOL - (2174 THOI).

PARA 91 Mar

and and an and a set that when 8= 1+ 102+ 12 20 The source with the server all the state of the second from the Land Mark and Mark Back



 \bigcirc





+= 11(-3-1] 11[1-(-3] 11[1-(-218)] = 11(1+2182) 6017 man

Subject: Algebra Class : 4th Year Secondary

(814-)+1) 11 (2-)-1

Attempt all questions:-

- 1. (i) Resolve x¹⁶-y¹⁶ into five factors. (ii) Divide $(x^2+y^2+z^2)(x+1)+(2xy-2xz)(x+1)-2xyz-2yz$ by x+1
 - and express the quotient as a perfect square.

(iii) If $a = \frac{x^2 - 2x + 2}{x(2 - x)}$ and $b = \frac{x - 1}{x(2 - x)}$, find the numerical value of $a^2 - 4b^2$ (9 narks).

- time when the boy overtakes his father.
- time when he meets his father.
- 3. (i) Compute by logarithms the value of the following:-

 $\mathbf{x} = \frac{8}{(\sin 17^{\circ} 14^{\circ})^{2} (\cos 9^{\circ} 11^{\circ})^{3}}}{(1.003)^{3} (15.04)^{5}}$

(ii) Find the value of x from the following equation:

 $(\log x)^2 - 4 \log x + 4 = 0$

- - seven terns.
- one inch as unit for x and one inch as unit for y.
 - From your graph obtain :-

 - a nininun.

Shamash Secondary School Conditional Examination, Sept. 1966

Datu: 8/9/1966 Time: 8:00 11:00 a.m.

(8 marks)

(8 marks)

2. (a) A man sets out at 7 a.m. from a town A to drive his horse and cart to B, a distance of 20 miles. His average speed is 6 m.p.h. at 7:30 a.n. his son leaves A by bicycle on the same road, riding at an average speed of 15 m.p.h. Write down the distance from A of each (i) at 7:40 a.m., (ii) t hours after 7 a.m. Calculate the (10 marks)

(b) When the boy reaches B, he spends half an hour there and then rides back along the same road at the same average speed. Calculate the (10 marks)

(10 marks)

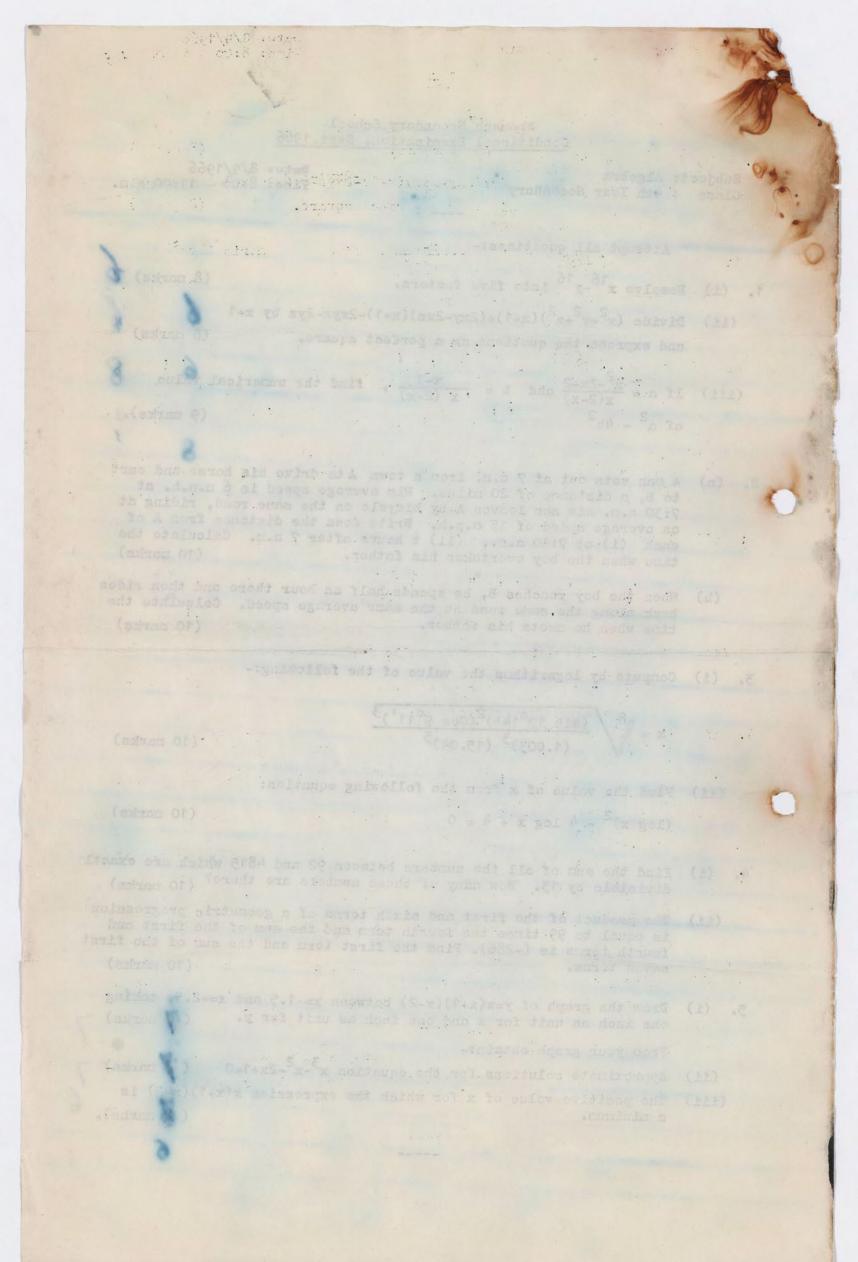
(10 narks)

4. (i) Find the sum of all the numbers between 92 and 4815 which are exactly divisible by 13. How many of these numbers are there? (10 marks).

(ii) The product of the first and sixth terms of a geometric progression is equal to 99 times the fourth term and the sum of the first and fourth terms is (-286). Find the first term and the sum of the first (10 marks)

5. (i) Draw the graph of y=x(x+1)(x-2) between x=-1.5 and x=+2.5, taking (g marks)

(ii) Approximate solutions for the equation $x^3-x^2-2x+1=0$ (8 marks) (iii) The positive value of x for which the expression x(x+1)(x-2) is (& marks).



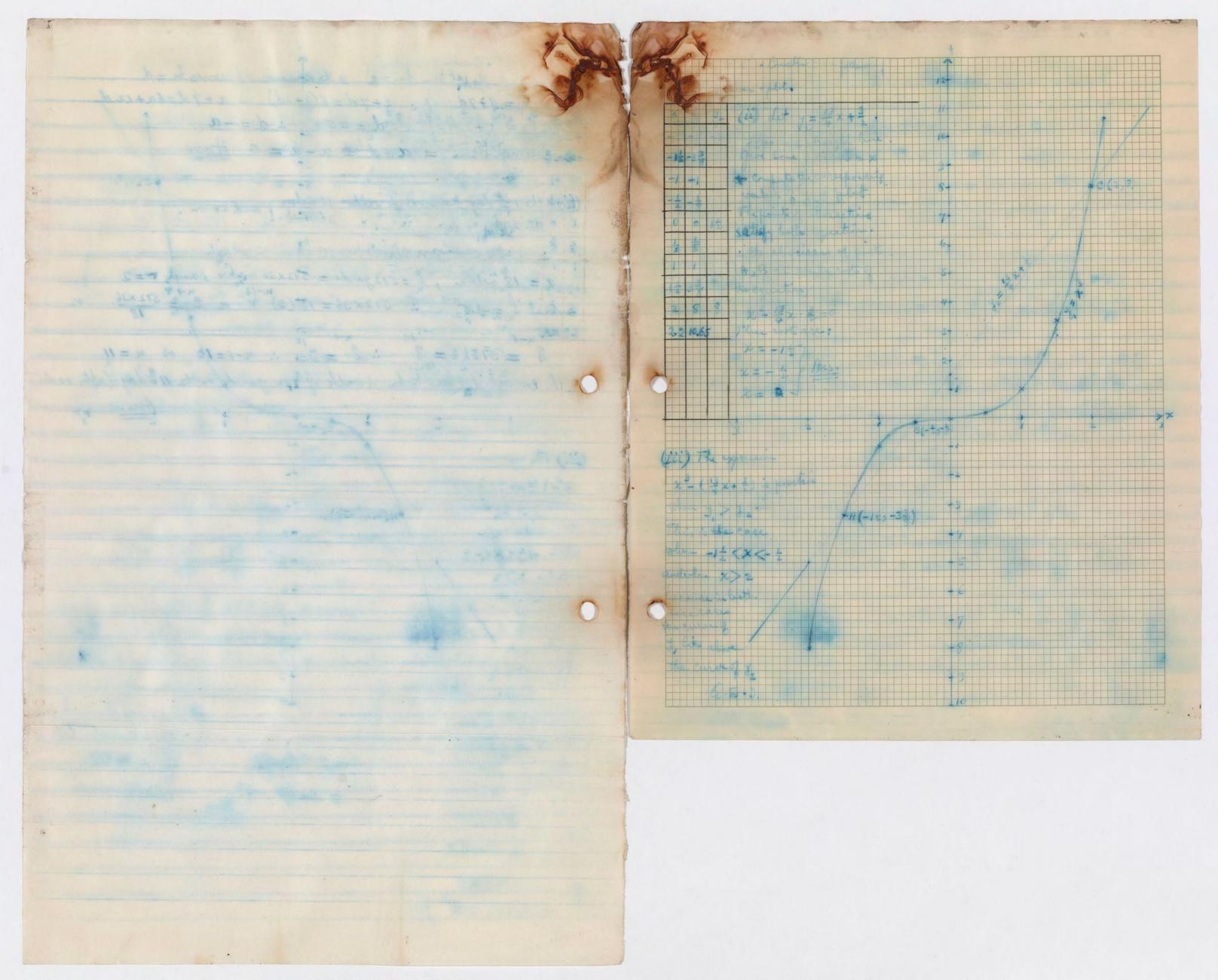
11 mx -12 mx y = m(16x - 11 x y + y +) = m(16x - 2x y + y + - 4x y) = (+2xy)(+x-y=2xy) = m (+x+++y-y)(+x++y-y). Here. (ii) $a^{2}b^{2}x^{2}-a^{2}b^{2}-2xbx^{2}+2ab+x^{2}-l = a^{2}b^{2}(x^{2}-b)-2ab/a-b+x^{2}$ = $(x^{2}-l)(a^{2}b^{2}+2ab+l) = (x-l)(x+l)(ab-l)^{2}$ $(44) 27 x y + 6y y = y^{2} (27 x y + 6y) = y^{2} [(3 x y^{2}) + 11]$ 43 (3x'y'+4) (9x'y'-12x'y +16) = 4 + 3x'y'+4) (3x'y'+24xy +16-36xy) y (2xy++) (2xy++) - (6xy) = y 3(3xy++)(3xy++)(3xy++)(3xy++) Aus.3 b) 2x + px + 1 will be diveriale inpla - 1) of the expression - 2+p+q+1=0 also whe in -2+p-2+1is p=-1 from equality (++ ++ ++ ++ ++ ++ = 0 2/+2= in the exerciseion is IX= x = 2x+1=0 (x-1) = 0 M = 2x(x-1) = 0 m(x-1)(2x-1)metting a remainder of (2+pigte) in the first case and a emainder to gas ; we Oriend care is Equating each ? 2 - a a x + b x + b + c - b = = 0 2. (a) axtinto (X+ Bx+S) $x = a \left[\left(x + \frac{b}{2x} \right)^2 - \frac{b^2 - 44c}{4a^2} \right] = a = a \left[\left(x + \frac{b}{2x} \right)^2 - \left(\frac{b}{2x} - \frac{b^2}{2a} \right)^2 \right] =$ a a (x+ b + Vb= 40) (x+ b - Vb- 400) x x+ ++ VI = = = ~ X= - 6+ V 8- 440 b - Wa- une -6-18-4AC Ile Sum atter with hold = x + x = $= \frac{x}{\sqrt{2}} = \frac{(-b - \sqrt{b^2 - yac})}{2a} \left(\frac{-b + \sqrt{b^2 - yac}}{2a} \right)$ $= \frac{(-b)^2 - \frac{2a}{2a}}{2a} = \frac{b^2 - b^2 + yac}{2a}$ product a man = xx = Har (a) Aus. 2

los Maddin Domining Marketing a (34-1)(4-4)=0 ~ y=4 or y=3 lime the ty by since now (log 9 \$ (log 3 2) = x - y = and a second and the log tan 19° 45 = T. 5551 log cos 77° 16 = 1300 log 3.004 = 0.4777 log Den = 7.4870 log 50.06 = 16995-2 log tam 19"45 = T. 1102 = FIDIE VENTX 3 by cart 16 = 2.0296 = XAtten = 3.1398 = 7.4870 Shi Lt.t. = = #.6528 +-= = 2. 52183 28.50 -(in the state of the second second And a set and all all -10-1 - 3.055 = 0.03325 = 3.325 × 10 Ans.

3x10-13x10+4=0 = let 10=1 then 3y2-134+4=0 = 10=4 hence x log10= log4 = x= log4 = 0.6021 Amin. 10x = + = x log10 = log1 - log3 or x = - log3 = x = - 0. 4771 ho 3 (i) log (2x-7x) = 2 = 2x-7x = 3 or 2x-7x-9=0 $^{3} (2x-9)(x+1) = 0 \propto x = 9 = 4.5 \text{ Prise?}^{-*}$ x=-1 Ansiz (ii) (log 9) (log 32) = ? det log 9 = x : 9 = 2 or 3 = 2 : xlg2=2log3 : x= 2log3 also lit log 32 = y = 32 = g or 25 = 37 : 24 log 3 = 5 log 2 2 by 3. 5 by 2 = 5 Ans. (iii) $y = \sqrt{(\tan 13^\circ 43)^2 \times (\cos 79^\circ 16)^3}$ a more direct method would be acfor (bij) $y = \sqrt{(\tan 13^\circ 43)^2 \times (\cos 79^\circ 16)^3}$ (bg3) (bg3) - bg9 bgse of by 2 (3.004) * x (50.06)^3 (bg3) - bg2 bg2 bg2 bg2 5 by 3.004 = 2.3 8.85 126xtpu19 45 = 1.1/02 - alig 50.86 = 5.0985 3 69 102216 logNam = 3,1398 11.7528 2.5361 - 00 0003 434×10"

I the lat time he = a g the comm X . the stilling the 13=a+11 1 1 5 d = - 5 a id = - a : Seend term = a + d = a - a = a Aus a 12 = # haven xingin age = x = 1 + + = 0. 6001 Mark (ii) the 1st day the month wellow 18 inches 7 and so on . the 2nd " " " " " " 36 which I and so on . - × logic = logi-logi = x = logi = x = - 0. 4111 11 " i char a Rometrie progradini i which 310) Top (-x-Jula 2 4 Stage 3 at 22-10- 3 and (+ Kang = 1 = 2 = x = 0 = (1+x) Bit hyperta & the lager a sand 1/18 asles-sheet 2 = 2 th handler to the man bases a general - y= 5 langs 2 - 51 5 . 57 A equi securita caracta and security = " The as they a 288. E.S. + House 2. 0 capozor mash States = 24875 E TT. 1525 San a she had a lo part 12 allo La Bi Tal 10 50 m -Nus = 3.1m E 3.457 4 0 03 CO . H 1 = 2. 52/83 2-6880-0+ 1 "DIX 7 58.8 =

6= a+7d 7: a+7d=6(a+2d) = a+7d=6a+12d a = 18 inches , l = 5/2 yourds = 5/2×36 inches , and == 2 Suice l=art " 512×36= 15 (2) or 2 = 572×36 $2 = 512 \times 2 = 2$ $\therefore 2 = 2^{\circ} \therefore n - 1 = 10$ of n = 11On the invalid can take a walk of size you do at the 11th day (after 10 Arres .



Nour Basi 45

Shamash Secondary School Final Examination, May, 1966.

Subject: Algebra Class : 4th Year, Scientific.

Answer all f i v e questions:

- 1. (a) Factor the following:
 - (i) $my^4 + 16mx^4 12mx^2y^2$ (ii) $a^2b^2x^2 - a^2b^2 - 2abx^2 + 2abx^2$ (iii) $27x^{6}y^{9} + 64y^{3}$
 - (b) Find the value of p and q which will make the expression
- product is equal to $(\frac{c}{a})$.
 - (b) Find the value of x from the following equation: $2x = 13.10^{2} + 4 = 0^{2}$
- 3. Solve only two sections from the following three sections: (i) Find the value of x from the following equation:

$$log(2x^2-7x) = 2$$

(ii) Without using tables evaluate:

(log 9)(log 32) 2 9

$$= \sqrt{\frac{(\tan 19^{\circ}45)^2 \times (\cos \theta)^2}{(3.004)^5 \times (50.06)^2}}$$

Date: 29/5/1966 Time: 8:00 - 11:00 a.m.

	-		(4	marks)
ab + :	x ² -1	 	(4	marks)
	1. 1		(4	marks)

 $2x^3 + px^2 + qx + 1$ divisible by (x-1) and (x+1), and find the third factor. (8 marks)

2. (a) Use the method of completing the square to show that the sum of the roots of the equation $ax^2+bx+c=0$ is equal to $(-\frac{b}{a})$ and that their (10 marks)

(10 marks)

(10 marks)

(10 marks)

(iii) Compute the value of y by logarithms, arranging your work neatly:

(10 marks)

 $\frac{05}{77}$ $\frac{77}{16}$ $\frac{3}{77}$

(cont'd.p.2)...

weat was and the

(-) of figno at Joshorg

Algebra. 4th Year Scientific.

4. (i) The eighth term of an arithmetical progression is six times the third term. Find the second term of the progression.

(ii) An invalid on a certain day was able to take a single step of 18 inches. If he was each day to walk twice as far as on the preceding day, how long would it be before he can take a walk of 512 yards ?

5. (i) Draw the graph of $y=x^3$ for values of x at half-unit intervals from -2 to 2.2, taking one inch as one unit on the axis of x and 0.4 inch as one unit on the axis of y.

(ii) Using the same axes and scales, draw another graph to find the roots of the equation $x^3 - \frac{13}{4}x - \frac{3}{2} = 0$. (7 marks)

(iii) From your diagram, find all values of x which make the expression $\left[x^3 - \left(\frac{13}{4}x + \frac{3}{2}\right) \right]$, positive.

-p.2-

29/5/1966.

Nour Bassi 45

(10 marks).

(10 marks)

(6 marks)

(7 marks).

(11) dis involté de a cortade day was able to take a starle ater of 18 medice. If He-was such day to walk buice as far as on the presents day, how long would it be before he can take a walk.

K No, aixs out no they one an done and yaits of the axis, of S- acts

Shamash Secondary School Final Examination, May, 1966.

Subject: Algebra Class : 4th Year, Scientific.

Naim Shahrabani

Answer all f i v e questions:

- 1. (a) Factor the following:
 - (i) $my^4 + 16mx^4 12mx^2y^2$ (ii) $a^{2}b^{2}x^{2} - a^{2}b^{2} - 2abx^{2} + 2ab + x^{2} - 1$ (iii) $27x^{6}y^{9} + 64y^{3}$

 - third factor.
 - product is equal to $(\frac{c}{a})$.
 - (b) Find the value of x from the following equation: $3.10^{2x} - 13.10^{x} + 4 = 0$
- (i) Find the value of x from the following equation:

 $log(2x^2-7x) = 2$

(ii) Without using tables evaluate:

(log 9)(log 32) 2 9

(iii) Complite the value of y by logarithms, arranging your work neatly:

 $y = \sqrt{\frac{(\tan 19^{\circ}45)^2 \times (\cos 77^{\circ}16)^3}{(3.004)^5 \times (50.06)^3}}$

Date: 29/5/1966 Time: 8:00 - 11:00 a.m.

(4 marks) (4 marks) (4 marks)

(b) Find the value of p and q which will make the expression $2x^3 + px^2 + qx + 1$ divisible by (x-1) and (x+1), and find the (8 marks)

2. (a) Use the method of completing the square to show that the sum of the roots of the equation $ax^2+bx+c=0$ is equal to $(-\frac{b}{a})$ and that their (10 marks)

3. Solve only two sections from the following three sections:

(10 marks)

(10 marks)

(10 marks)

(10 marks)

(cont'd.p.2) ...

the strate Harris Maria de anna 19

Subjects Algeban Clajes i 9th 7425, Schuchtle ALL OBLAN - ODLAS LIVE

Para das + Salas - Sala - Salas (18)

Sx2 + px2 + qx + 4 distminis by (x-1) and (x-1), and find the

S. (a) Use the method of completing the square to show that the sum of the

3,10 - 13,10 + 4 = 0

3. Solve only two sections from the following three sections:

interesters ander ander tradition and

(10g 9)(10g 35) *

. (2.1.) degeate the watto of y by logarithms, arranging gold work adding.

- 24 (tau 19245) * (can 27 153

Algebra. 4th Year Scientific.

Shahrabani

- - of 512 yards ?
- 5. (i) and 0.4 inch as one unit on the axis of y.
 - roots of the equation $x^3 \frac{13}{4}x \frac{3}{2} = 0$.
 - expression $\left[\frac{13}{4}x + \frac{3}{2} \right]$, positive.

-p.2-

29/5/1966.

4. (i) The eighth term of an arithmetical progression is six times the third term. Find the second term of the progression.

(10 marks).

(ii) An invalid on a certain day was able to take a single step of 18 inches. If he was each day to walk twice as far as on the prefeding day, how long would it be before he can take a walk

(10 marks)

Draw the graph of $y=x^3$ for values of x at half-unit intervals from -2 to 2.2, taking one inch as one unit on the axis of x

(6 marks)

(ii) Using the same axes and scales, draw another graph to find the (7 marks)

(iii) From your diagram, find all values of x which make the

(7 marks).

4. (1) Due exacts traps of an exitmetical proposion is mit black the third term, the ecceld farm of the programme.

So the state

(11) An invalid on a cortain dar was able in take a stands atop of its introbust of the was had day to make things on far as of the preceding day, now long would it be before as can take a sails of 512 yards ?

. 1

5. (1) Braw the graph of yex² for values of x at helt-unit intervals from -2 to 2.2, teleing one inch is one unit on the exist of y and 0.4 their is one unit on the exist of y:

(13) Nature the same area and scales, drow support frage to find the rest of the equation $\frac{3}{2}$ = $\frac{3}{2}$ = $\frac{3}{2}$ = $\frac{3}{2}$

Shamash Secondary School Final Examination, May, 1966.

Subject: Algebra Class : 4th Year, Scientific.

Answer all f i v e questions:

- 1. (a) Factor the following:
 - (i) $my^4 + 16mx^4 12mx^2$ (ii) $a^{2}b^{2}x^{2} - a^{2}b^{2} - 2a$ (iii) $27x^{6}y^{9} + 64y^{3}$
 - (b) Find the value of p and q which will make the expression third factor.
- product is equal to $(\frac{c}{a})$.
 - (b) Find the value of x from the following equation: 3.10 - 13.10 + 4 = 0
- (i) Find the value of x from the following equation:

 $\log_3(2x^2-7x)=2$

(ii) Without using tables evaluate:

 $(\log 9)(\log 32)$ 2 9

(iii) Complite the value of y by logarithms, arranging your work neatly:

 $y = \sqrt{\frac{(\tan 19^{\circ}45)^2 \times (\cos 77^{\circ}16)^3}{(3.004)^5 \times (50.06)^3}}$

.

$$y^{2}$$

bx² + 2ab + x²-1

(4 marks) (4 marks) (4 marks)

.

 $2x^3 + px^2 + qx + 1$ divisible by (x-1) and (x+1), and find the (8 marks)

2. (a) Use the method of completing the square to show that the sum of the roots of the equation $ax^2+bx+c=0$ is equal to $(-\frac{b}{a})$ and that their (10 marks)

3. Solve only two sections from the following three sections:

(10 marks)

(10 marks)

(10 marks)

(10 marks)

(cont'd.p.2)..

and a lot all -p.2-29/5/1966. Algebra. 4th Year Scientific. ---in a survey of the second second 4. (i) The eighth term of an arithmetical progression is six times the third term. Find the second term of the progression. (10 marks). (ii) An invalid on a certain day was able to take a single step of 18 inches. If he was each day to walk twice as far as on the preceding day, how long would it be before he can take a walk of 512 yards ? (10 marks) 5. (i) Draw the graph of $y=x^3$ for values of x at half-unit intervals from -2 to 2.2, taking one inch as one unit on the axis of x and 0.4 inch as one unit on the axis of y. (6 marks) (a) Use the acting of completing the squere to show that the sum of the . roots of the equation ar +bx+c=o is equal to (- -) and that their (ii) Using the same axes and scales, draw another graph to find the roots of the equation $x^3 - \frac{13}{4}x - \frac{3}{2} = 0$. product is equal to (=). (7 marks) (iii) From your diagram, find all values of x which make the expression $\left[x^3 - (\frac{13}{4}x + \frac{3}{2})\right]$, positive. (7 marks). 5. Solve only two sections from the following three excitoner

Wadia Jawl.

Shamash Final Exam

Subject: Algebra Class : 4th Year, Scienti.

Answer all f i v e

- 1. (a) Factor the following:
 - (i) $my^4 + 16mx^4 12mx^4$
 - (ii) $a^2b^2x^2 a^2b^2 2$
 - (iii) $27x^{6}y^{9} + 64y^{3}$
 - (b) Find the value of p and $2x^3 + px^2 + qx + 1$ diviting factor.
- 2. (a) Use the method of comp. roots of the equation product is equal to (
 - (b) Find the value of x from $3.10^{2x} - 13.10^{x} + 4$
- 3. Solve only two sections from (i) Find the value of x fr

.

 $log(2x^2-7x) =$ 3

(ii) Without using tables

(log 9)(log 32 2 9

(iii) Complite the value of

 $\frac{(\tan 19^{\circ}45)^{\circ}}{(3.004)^{5}}$

. .

(41) An invelté on a certain day une able to these a single stor of 18 inches. If he was each day to walk thick as far as on the producting day, how long would it he before he can take a walk of 512 yerds to the second store he can take a walk.

5. (2). Draw the graph of y=x² for values of x at balk-undy incorvals from -2 to 2.2; taking one and as one with at the axis of x and 0.4 fach as one unit ou the axis of y.

(11) daing the same aven wed shallow, draw another graph to find the

Cocondany Cobcol	
mination, May, 196	6.
	Date: 29/5/1966 Time: 8:00 - 11:00 a.m.
questions:	
2 _y 2	(4 marks)
$abx^{2} + 2ab + x^{2} - 1$	(4 marks)
	(4 marks)
d q which will make	e the expression
	d $(x+1)$, and find the
	(8 marks)
ax ² +bx+c=o is equal	to show that the sum of the 1 to $(-\frac{b}{a})$ and that their
$\frac{c}{a}$).	(10 marks)
-	
om the following ed	luation:
= 0	(10 marks)
om the following th	aree sections:
rom the following e	
2	(10 marks)
evaluate:	
2)	(10 marks)
	arranging your work neatly:
$\frac{2 \times (\cos 77^{\circ} 16)^{3}}{(50.06)^{3}}$	(10 marks)
(50.06) ³	

(cont'd.p.2)..

MAR OUTTE - WELSTREET

4

.

and there + an + " divisible of (1-1) and (1-1), and the

(a) Use the method of completized the source to show that the sum of the

3/10 + + OI - 51 - + = 0 Solve only any suctions from the following three sectioned (2) First the walks of a from the "willowing estimated

2=\\ (31004)? x (30104)? (31004)? x (30104)?

Wadis Joud.

4th Year Scientific. Algebra.

4. (i) The eighth term of an arithmetical progression is six times the third term. Find the second term of the progression.

(ii) An invalid on a certain day was able to take a single step of 18 inches. If he was each day to walk twice as far as on the preceding day, how long would it be before he can take a walk of 512 yards ? (10 marks)

Draw the graph of $y=x^3$ for values of x at half-unit intervals from -2 to 2.2, taking one inch as one unit on the axis of x 5. (i) and 0.4 inch as one unit on the axis of y.

(ii) Using the same axes and scales, draw another graph to find the roots of the equation $x^3 - \frac{13}{4}x - \frac{3}{2} = 0$. (7 marks)

(iii) From your diagram, find all values of x which make the expression $\left[x^3 - (\frac{13}{4}x + \frac{3}{2})\right]$, positive.

-p.2-

29/5/1966.

(10 marks).

(6 marks)

1

(7 marks).

4. 13 (1) The sighth term of an arithmetical progression is air

18 inches. If he was cook day to walk twice as in the or the product of the produ

in a state and the address of the state

Class : 4th Year, Scientific.

Subject: Algebra

Answer all f i v e questions:

1. (a) Factor the following: (i) $my^4 + 16mx^4 - 12mx^2y^2$ (4 marks) (ii) $a^{2}b^{2}x^{2} - a^{2}b^{2} - 2abx^{2} + 2ab + x^{2} - 1$ (4 marks) (iii) $27x^{6}y^{9} + 64y^{3}$ (4 marks)

- (b) Find the value of p and q which will make the expression third factor.
- product is equal to $(\frac{c}{a})$.
 - (b) Find the value of x from the following equation: $3.10^{2x} - 13.10^{x} + 4 = 0$
- (i) Find the value of x from the following equation:

 $\log (2x^2 - 7x) = 2$

(ii) Without using tables evaluate:

(log 9)(log 32) 2 9

(iii) Complite the value of y by logarithms, arranging your work neatly:

 $y = \sqrt{\frac{7}{(\tan 19^{\circ}45)^{2} \times (\cos 77^{\circ}16)^{3}}}{(3.004)^{5} \times (50.06)^{3}}}$

Shamash Secondary School Final Examination, May, 1966.

> Date: 29/5/1966 Time: 8:00 - 11:00 a.m.

 $2x^3 + px^2 + qx + 1$ divisible by (x-1) and (x+1), and find the (8 marks)

2. (a) Use the method of completing the square to show that the sum of the roots of the equation $ax^2+bx+c=0$ is equal to $(-\frac{b}{a})$ and that their (10 marks)

3. Solve only two sections from the following three sections:

(10 marks)

(10 marks)

(10 marks)

(10 marks)

(cont'd.p.2)..

4th Year Scientific. Algebra. . . (d) Foutor the following: of 512 yards ? roots of the equation $x^3 - \frac{13}{4}x - \frac{3}{2} = 0$. . expression $\left[x^3 - (\frac{13}{4}x + \frac{3}{2}) \right]$, positive.

-p.2-

29/5/1966.

4. (i) The eighth term of an arithmetical progression is six times the third term. Find the second term of the progression.

(10 marks).

(ii) An invalid on a certain day was able to take a single step of 18 inches. If he was each day to walk twice as far as on the prefeding day, how long would it be before he can take a walk

(10 marks)

5. (i) Draw the graph of $y=x^3$ for values of x at half-unit intervals from -2 to 2.2, taking one inch as one unit on the axis of x and 0.4 inch as one unit on the axis of y.

(6 marks)

(ii) Using the same axes and scales, draw another graph to find the (7 marks)

(iii) From your diagram, find all values of x which make the

(7 marks).

(iii) Maing the come such and saules. And and the bor graph to

 $I_{0}(i) \quad 2(x^{2}-z)^{2} + 5(x^{2}-z) - 12 = 0$ also $(x^2-2)+4=0$ or $x^2=-2$

 $= \frac{6 \chi^2 y^2}{m+n} \div \frac{[3(m-n)\chi][21\chi y^2(r^2-s^2)]}{[7(r+s)][16(r-s^2)(m^2-n^2)]}$

 $\frac{20}{10} \log y = a + b \log x \quad z \text{ when } x = 1 \quad y = 1000 \quad z = 10 \\ 10 \quad y = 100 \quad y = 100 \quad y = 200 \quad y$: y=10 Aus. (10 marks)

Solutions to Conditional Examin Algebia Sept., 1965, 4th year $e_{1}\left[2(x^{2}-2)-3\right]\left[(x^{2}-2)+4\right]=0$ $\therefore \chi = \pm \sqrt{\frac{7}{2}} \xrightarrow{\phi_1} \chi = \pm \pm \sqrt{14} \operatorname{Ans.}_{\overline{H}}$ $\therefore \chi = \pm \sqrt{-2} = \pm \sqrt{2} \underbrace{\downarrow} \operatorname{Ans.}_{\overline{H} \pm \overline{W}}$ $(\ddot{u}) (\alpha) \left\{ \frac{(g^{n+\frac{4}{2}})(\sqrt{3.3^n})}{3\sqrt{3^{-n}}} \right\}^{\frac{1}{2}} = \left\{ \frac{(3^2)^{\frac{4n+1}{4}}}{3^{\frac{1-\frac{3n}{2}}{2}}} \right\}^{\frac{n+1}{2}} = \left\{ \frac{3^2}{3^{\frac{1-\frac{3n}{2}}{2}}} \right\}^{\frac{1-\frac{3n}{2}}{2}} = \left\{ \frac{3^2}{3^{\frac{1-\frac{3n}{2}}{2}}} \right\}^{\frac{1-\frac{3n}{2}}} = \left\{ \frac{3^2}{3^{\frac{1-\frac{3n}{2}}{2}}} \right\}^{\frac{1-\frac{3n}{2}}{2}} = \left\{ \frac{3^2}{3^{\frac{1-\frac{3n}{2}}}} \right\}^{\frac{1-\frac{3n}{2}}} = \left\{ \frac{3^$ $= \left\{ 3^{\frac{4n+1+n+1+n-2}{2}} \right\}^{\frac{n}{2}} = \left(3^{\frac{3n}{2}} \right)^{\frac{n}{2}} = 3^{\frac{3n}{2}} = 27 \text{ Aus.}$ (6 marks) (b) $\frac{6\chi^2 y^2}{m+n} \div \left[\frac{3(m-n)\chi}{7(r+s)} \div \left\{ \frac{4(r-s)}{21\chi y^2} \div \frac{r^2-s^2}{4(m^2-n^2)} \right\} \right] =$ $= \frac{6 \chi^2 y^2}{m + 24} \div \left[\frac{3(m - 2\pi)\chi}{7(r + s)} \div \frac{4(r - s)}{21 \chi y^2 (r^2 - s^2)} \right] =$ $\frac{6\chi^2 y^2}{m f n} \times \frac{7 \times 16 (m^2 - n) (r^2 - s^2)}{3 \times 21 (m - n) (r^2 - s^2) (\chi^2 y^2)} =$ $\frac{6 \times 7 \times 16}{3 \times 24} = \frac{32}{3} Ans$ (6 masks) = log 1000 = a + b log 1 oz 3 = a oz a = 3 log 100 = a + b log 0.1 or 2= a - b or b= 1 = logy = 3 + logx & logy = 3 + logio or logy = 4 (ii) log 2 = 0.301030 , log 1.005 = 0.00 2166 , log 40 =? slg0.0804? $1.005 = \frac{1005}{1000} = \frac{5 \times 3 \times 67}{1000} = \frac{3 \times 67}{200} \quad \therefore \quad 3 \times 67 = 200 (1.005)$ $402 = 2 \times 3 \times 67 = 2 \left[200 (1.005) \right] = 2^{2} \times 100 \times 1.005$ $0.0804 = \frac{804}{10^{4}} = \frac{2 \times 402}{10^{4}} = \frac{2^{3} \times 100 \times 1.005}{10^{4}} = \frac{2^{3} \times 1.005}{10^{4}}$

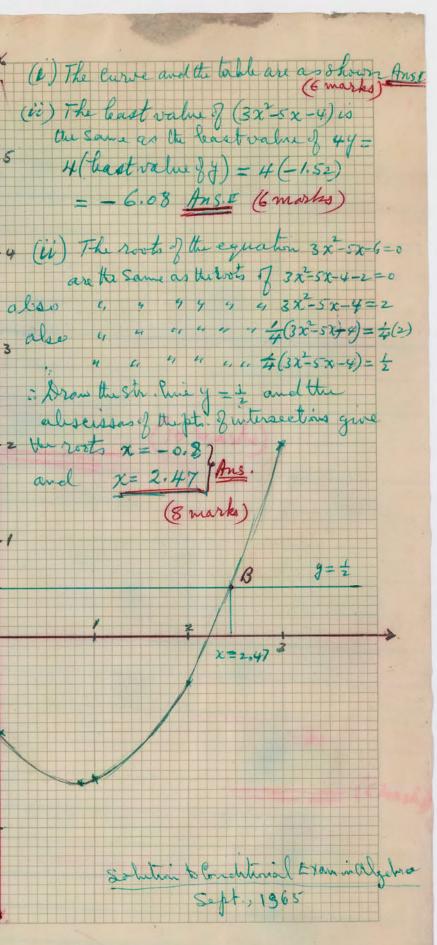
Shites

$$\frac{1}{1+1} = \frac{1}{1+1} = \frac{1}{1+1$$

to Conditional Examin Algebra continued Sept., 1965 lg1.005 = 2 x0.30/030 +2+ 0.00 2166 +2+0.002168 = 2.60H226 Ans. (5 masks) 1.005-2 = 3×0.301030+0.002166-2 +0.002166-2=0.905256-2 744 Ans. (5 marks) B 48 migh 550gd 32 m.p.h. mile $7: 48(\frac{t}{3600}) - 32(\frac{t}{3600}) = \frac{550}{1760}$ mile $7: 48(\frac{t}{3600}) - 32(\frac{t}{3600}) = \frac{550}{1760}$ $=\frac{55}{176}\times\frac{3600}{16}=\frac{5}{16}\times\frac{450}{2}=\frac{1125}{16}$ = 70.3 Sec = 70 Sec 5the nearest second) = $\frac{D}{1260}$: $t(\frac{x-y}{340}) = \frac{D}{176}$ $2 = \frac{45 \text{ D}}{22(x-y)} + \frac{45 \text{ D}}{45 \text{ D}}$ (7 masks) la $x-y = \frac{45 \text{ D}}{22 \text{ t}}$ - 45D Ans. (Gmasks)

Solutions & Conditional Examin algebra but. Sept. , 1965 Solutions to Conditional Examin Algebra continued -Lop 1, Agez 4. (i) the first number which is dwischle by 13 + greater them led is togetes = 2 tog + 2 + toglood = 2 x 0.301030 +2+ 0.00 2166 65=(5x1) and the last number divisible by is and less than boo = 0.602060 + 2+0.002168 = 2.60 H226 AM. is 598 = (46x13) : we a have an Arith Prog. in which a=65, l= 598, d=13. to find n + 5'. (5 marsha) Eg 0.804 = 3 Eg = + Eg 1.005 - 2 = 3×0.301030+0.00 216-2 l = a + (n-1)d :: 598 = 65 + (n-1)13 : 13(n-1)=533 $n - 1 = \frac{535}{13} = 41 - n = 42$ = 0.3030 90+ 0.002/64-2 = 0.905256-2 ~ S= m (a+t) or S= 42 (65+598) or S=21x 663 = - 1.034744 Ans. (5 marks) N S= 13923 Ans. (10 masks) Other A handale bain A 18mgh soga scapt (i) total at the end of 5th lime is = 256+ 64x2 + 16x2+ 4x2+1x2 256 14 14 256 64 16 64 16 $\beta = 256 + 2(64 + 16 + 4 + 1)$ 16 t 37 0 t t = 75 36 1 5 450 1125 $= 256 + 2 \left[\frac{64(1-(4)^{+})}{1-4} \right]$ $= 256 + 2\left[\frac{4\times64}{3}\left(1 - \frac{1}{4^{4}}\right)\right] = 256 + \frac{572}{3}\left(1 - \frac{1}{256}\right)$ Colorado ante $= 256 + \frac{512}{3} \times \frac{255}{256} = 256 + 170 = 426 \text{ Ans. (Smashy)}$ (dears 1) and 0 24 + 45 0 1/1 (9 marks) @ lotal dist. at the end of nthe strike is S'= 256+2(64+16+4+--- to (n-1) terms) $S' = 256 + 2 \left[\frac{6421 - (4)}{1 - 4} \right] = 256 + 2 \left[\frac{4 \times 64}{3} \left(1 - \frac{1}{4^{n-1}} \right) \right]$ i y = x - 450 Au (Emerica) $= 256 + \frac{572}{3} \left(1 - \frac{1}{4^{n-1}} \right) = 256 + \frac{572}{3} - \frac{572}{3 \times 4^{n-1}}$ $= \frac{768 + 572}{3} - \frac{572}{3 \times 4} = \frac{1280}{3} - \frac{512}{3 \times 4^{n-1}}$ $= \frac{1280}{3} - \frac{2^9}{3 \times 2^{n-2}} = \frac{1280}{3} - \frac{2}{3} = \frac{1280-2}{3} = \frac{1280-2}{3}$ (carana) == Ans (smarks)

interior to tendoticiel Examin Migeleter but 2442 1965 + (3x - 5x - 4) the first members which is durited by 13 + greatellow the is 2 -2 3 2 is 598 = (46x13) is an a trave an it with Prop in which -= a=65., l= 598 , d=13 . to find a + s' (= a.+(a.+) d = 878 = 65- (u-1)/3 ... 13(u-1) 433 3 also 1 = " (a+t) or S= " (65+598) or S=2+x663-* 3= 13923 (tres. (10 marks)) O 1/0 title at the endlog 5th in - 2561 Rolf x2 + 16X 2 + 4X2 +1X2 18= 256+2 (64+16+4+6) A = 256 + 2 [640- (\$)]] x=-0.8 (1)-256+ 512 (1- 256) -1 hgxth 256 + 170 = 1126 Marsh (Sharsh) the dist at the and of a the shife in 2 256+2(64+16+4+-6451-1343 12=256+21 14-211 3 x 2 (ogrand)



Shamash Secondary School Conditional Ramination, Sept. 1965

Subject: Algebra Class: 4th Year, Scientific

Attempt all questions:

1. (i) Solve'by the shortest possible way the following equation:

 $2(x^{2}-2)^{2} + 5(x^{2}-2) - 12 = 0$

Give your answers correct to two decimal places using tables if necessary.

(ii) Reduce to simplest form the expressions:

(a)
$$\left[\underbrace{(9^{n+1/4})(\sqrt{3\cdot 3^n})}_{3\sqrt{3^{-n}}} \right]^{\frac{1}{n}}$$

(b) $\underbrace{6x^2y^2}_{m+n} \cdot \underbrace{\frac{3(m-n)x}{7(r+s)}}^{\frac{1}{n}}$

2. (i) The variables x and y are related by the equation

without the use of tables: (a) $\log 402$, (b) $\log 0.0804$ 10 10

- 3.
 - for the time, t sec., taken to overtake.
 - (iii) From your formula express y in terms of the other letters.

Date: 16/9/1965 Time: 8:00-11:00

(8 marks)

(6 marks)

$$\frac{4(r-s)}{21xy^2} - \frac{r^2 - s^2}{4(m^2 - n^2)}$$

 $(\log_{10} y=a + b\log_{10} x)$ where a and b are constants. If y = 1000 when x=1 and y=100 when x = 0.1, find the value of y when x=10

(10 marks)

(ii) Given that $\log_{10}^2 = 0.301030$ and $\log_{10}^2 1.005=0.002166$. Calculate,

(10 marks)

(i) A car travelling steadily at 48 m.p.h. is 550 yd. behind a car travelling steadily at 32 m.p.h. Find, to the nearest second, the time taken by the faster car to overtake the slower.

(ii) If the faster car is travelling at x m.p.h. and the slower at y m.p.h. and D yds. is the distance between them, find a formula

(20 marks)

(p.2..)

colos vester All Allander

Caeries Missing

note and war with the to the

Of an and a set of the sale sale and a man a man

(1:0. ::'the factor car to fveroiting at a moth, and the shower at the structure of the the the contant bounder them, ind a form the time, t see, teled to overtake. (111) Them your tormale express via terms of the other fetters:

Algebra 4th Year. Scientific.

ww

 \bigcirc

(i) Find the sum of all the numbers between 60 and 600 which are 4. exactly divisible by 13.

(ii) An elastic ball is dropped on to a horizontal smooth plate and allowed to go on bouncing in the same vertical line. At each bounce it rises to one-fourth of the height from which it has fallen. If it is originally released from a height of 256 ft., find the total distance the ball has moved altogether, up and down, by the time it strikes the plate for: (1) the 5th time (2) the nth time.

(i) Draw the graph of $\frac{4}{3x^2-5x-4}$ for values of x from -2 to +3, using a scale of 1 inch to 1 unit on each axis. 5.

(ii) Use your graph to find the least value of $3x^2 - 5x - 4$.

(iii) By drawing the appropriate straight line on your graph, solve the equation $3x^2 - 5x - 6 = 0$

-p.2-

16/9/1965

(10 marks)

(10 marks)

(6 marks)

(6 marks)

(8 marks)

Subject: General Mathematics Class: 4th Year Secondary

I. Give the English Equivalent of the following:

7_ المقسوم عليه

γ_ ناتج القسمة

٨_ المقسوم

٩- باقى القسمة

• 1- مضاعیے

Alectra 400 Tears Solating 1981 Te

- Lander And And The Martin and

(1) Find Mid Counter all the minbord ant see see 60 and 600 ghich are exactly divisible by 13.

. (1) Drive the graph of Mins"-Sx-W) for values of y from -2 to +3,

O

Monthly Examination, August 1965

Date: 19/8/1965 Time: 7:30-8:15 a.m.

۱- ارقسام

・アン

الوج:

and the

۲ - مراتب ٣- المل ع الحوامل ه_ أس القوة ١١ – اعداد زوجية متتالية ٢ ١- اعداد فردية متتالية ١٣- اعداد اولية ع 1- الجز الصحيح من الحدد ه 1- المقام المشترك الاصغر ١٦ - كسر لفظي ٢ (- مقلوب الحد د ٨ (- الكسو ر الحشرية المنتجية ٢ - الكسور المشرية الدورية • ٢- بسط الكسر ٢٦ مقام الكسر ٢٢ - الخطأ المئوى ٢٣- النسبة والتناسب ع ۲ _ الوسط المتناسب بين عد دين ٥٦- ربيع المساهم (ربي عاملالاسمم) ٢٦ - البديبية ٢٧- الموضوعة ٢٨ - زاوية حادة • ٣- زاوية منحكسة ٢٦- قطحة داعرة ۲ ۳- قطاع دائرة ٣٣_ المعاليسم

٢٢- المجاهيك ه ٣- زاويتان متتامتان

15 B.

Contbly Exemination, August 1969

1- 1 Emply 7 me of tendy 3 milled

1 1- laule ceres with 5 F Can Tang Little 17 mar all of 1 Plans. (م، الله الله عن معالماً ومن الم 17-dest atest 7 7 - Hold ge 12 5 م ٣-- والعان معاملان .

۳٦ زاويتان متكاملتان ٢٧- مضلع متساوى الاضلاع ٨ ٦- مثلث متساوى السا قين ٩ ٣- الخطوط المتوسطة في المثلث • ٤ - المعين (٤- المحل الهندسي ٢٢ - المستقيم القاطع للدائرة ٢٢ ازالة وادخال الاقواس ع ع ـ نقل عد ود المعادلة من جمة الى الجمة الاخرى ٢٦ _ متباينة ۲۶ ـ مقدار جبری متجانس ٨٤ ـ د رجة المقدار الجبرى ٢٦- المعامل الحرفي • ٥- مقدار جبرى من الدرجة الثانية · (75 marks) II. Fill in the blanks in the following equations:-1. one furlong = () chains = () mile 2. one chain = () yards = () links 3. one statute mile = () yds.=() ft. 4. one nautical mile = () ft. 5. one sq. chain = () sq. yds. 6. one acre = () sq. ch. = () sq. yds. 7. one gallon = () pints 8. one bushel = () gallons = () pecks 9. one English ton = () lbs. () kilograms 10. one English ton = () cwt. = () qr.= () stones.

0

-100-

(25 marks).

1231

الاسم

A State of the star 13 million they little last יוש ביישונ אונו אל בוויט

Ya- Bot, the the

13- Thank to They • مسمقدار جيري من الدرية الثانية .

> II. Fill in the blacks in the following squations:asteric (3. one statute mile = (.) yds.=() ft.

6. one sere = (') sq. ch. = () sq. yds.

0

0

Subject: General Mathematics Class: 4th Year Secondary

I. Give the English Equivalent of the following:

7_المقسوم عليه γ_ ناتج القسمة

٨- المقسوم

٩- باقي القسمة · <u>ا م</u>ضاع<u>ا</u>

_ يتبح

: 1-31

ドアン

Monthly Examination, August 1965

Date: 19/8/1965 Time: 7:30-8:15 a.m.

۱- ارقام

States I all the

۲ - مراتب 7-145 ع الحوامل <u>و أسالقوة</u> ١١- اعداد زوجية متتالية ۲ ۱ – اعداد فردية متتالية ٣ (_ اعداد اولية ٢ - الجز الصحيح من الحدد ه ١- المقام المشترك الاصغر 17 _ کسر لفظی ٢٢ - مقلوب الحد د ١٨- الكسور الحشرية المنتهية ٩ ٦- الكسور المشرية الدورية . ٢- بسط الكسر ٢١ ـ مقام الكسر ٢٢ - الخطأ المئوى ٢٣ - النسبة والتناسب ٢ ٢ - الوسط المتناسب بين عد دين ٥٦- ربح المساهم (ربع عامل الاسمم) ٢٦ - البد يهنية ٢٢ - الموضوفة ٢٨- زاوية حادة ٢٦ زاوية منفرجة • ٣- زاوية منحكسة (٣_ قطعة دائرة ۲ ۳- قطاع دائرة ٣٣ المعاليسم ع ٣- المجاهيك ه ۳- زاویتان متتامتان

5 - 3 - F - 50

۲ ۳- زاویتان متکاملتان ٣٧ ـ مضلع متساوى الاضلاع ۸ ۲ - مثلث متساوى السا قين ٩ ٣- الخطوط المتوسطة في المثلث • ٤ - المعين 1 ٤- المحل الهندسي ٢ ٢ - المستقيم القاطع للدائرة ٢٢ - ازالة وادخال الاقواس ؟ ٢- نقل عدود المعادلة من جمة الى الجمة الاخرى ٥٤ ـــ متطابقة for the second ٢ ٢ ــ متباينة ۲۶ _ مقدار جبری متجانس ٤٨ - د رجة المقدار الجبرى وع- المعامل الحرفي 5. B • ٥- مقدار جبرى من الدرجة الثانية • (75 marks) II. Fill in the blanks in the following equations:-) mile 1. one furlong = () chains = () links 2. one chain = () yards = (2 3. one statute mile = () yds.=() ft. 4. one nautical mile = () ft. 5. one sq. chain = () sq. yds. 6. one acre = () sq. ch. = () sq. yds. 7. one gallon = () pints 1.30) pecks 8. one bushel = () gallons = (9. one English ton = () lbs. ___() kilograms 10. one English ton = () cwt. = () qr.= () stones.

AL ADAY

-100-

120 - alla

from by Brand of

The The Human

3 7 Mind agents

(25 marks).

	DEN Barry
1 - desta starta	SHAMASH SECONDARY SCHOOL
	FINAL EXAMINATION, JUNE, 1965.
	Subject : Algebra. Class : 4th year, secondary, sections A & B. Date : 1/6/1965. Time : 8:00-11:00 a.m
to a dealer that the second	Class . th year, secondary, seccions & a D. IIme . 0.00-11.00 a.m
	a sub a second the second of t
wy and the design of the state of the	Attempt all questions :
	1. (i) If $m = \frac{2x + y}{x}$, find an expression for y in terms of m and x.
	1. (i) If $m = \frac{2x + y}{x + 2y}$, find an expression for y in terms of m and x.
2 2 Martin Barnella in Charles	
	If also $Y = mx$, find the values of m. (7 ma
the state of the s	the second
17- Hard Harrison	(ii) Resolve into two factors : $c^3 - 27b^3 + a^3 + 9abc$ (7 ma
	(iii) Recolve the encoder 5^2 the original sector 1
The second states and the second s	(iii) Resolve the expression $5x^2 - 14x + 9$ into two factors and show the value of this expression is negative when x lies between 1 and
	(6 ma
I have been an assumed as to an applicable and the second se	
	Z (i) Compute by Jacouithman in the
and by the same have been suit to the same and the same	3. (i) Compute by logarithms, arranging your work neatly :
For the second	the free Sh -19# +3 and The share have here and the many of
and the second and the	1^{7} (605 ² 18° 47)(sin ³ 48° 21)
Y3- while said states a state of the state of the state of the states of	$\int_{(10.09)^3}^{7} \frac{(\cos^2 18^\circ 47)(\sin^3 48^\circ 21)}{(10.09)^3 (0.0002049)} $ (6 ma
A Louis and their there are a second and the second s	(10.09) (0.0002049)
and the state of t	The second is the second a solute being
	(ii) If 2 log a-5 log b=3 logc, find 'a' in terms of 'b' and 'c'. (4 ma
The second the second the second of the second seco	
and have a find of the cost of the second of	
to be a set of the set	with men will at a weight rate mind their rates of walking in valor
-thusdileyes go boold in and all some to I the solution of the	(iv) Solve the equation $2^{3-x} = 3^{2x+1}$ giving your answer correct to t
and the second of the second of the second t	decimal places. (6 ma
- Land and a share at a standa we have a start a start a	the is to us & be within arranging you will theatly a
	me (a) remarked adversarial of the second of the
	4. (i) Write down and simplify an expression for the nth term of the ari
	progression 3, 7, 11, (4 ma
	If the sum of n terms of this progression is bn $+$ cn ² find the va
Salar and a distance () and you and a state of a salar state of the s	of b and c and the sum of the first thirty terms. (8 ma
Conse gollon = () pints	
anora (") - ano the fight - " Printed out the Line	(ii) The meduat of the single a survey
	(ii) The product of the first and seventh terms of a geometric progres is equal to the fourth term; and the sum of the first and fourth t
Alt, one Magaioh ton = () cantes () Stat (is 9. Find the sum of the first seven terms of the progression.
	(8 ma
(estates (est)	gels and a separation of the sound of the
ad the state of a state in the surger and i a state of the state	5. (i) Draw the graph of $y = (x - 1)(x - 3)^2$ for values of x from $-\frac{1}{2}$ to
	choosing 0.7 inch for your unit on the x-axix and 0.2 inch for w
water a literation of the second state and the seco	unit on the y-axix. To get a good drawing of the curve, choose
	successive values of x at intervals of halves, beginning with -1/2 (5 max
	the second of the second of the provision of the provision of the second of the
	(ii) From this graph find an approximate maximum value and an exact
	minimum value for y and the corresponding values of x which make a maximum or a minimum.
	(iii) By plotting another graph on the same diagram find the roots of
and the second s	equation $(r, 1)(r, 7)^2$
	(5 max)
	(iv) From these two graphs find the values of x for which the function
	a spar the values of Y top which the function

I SECONDARY SCHOOL EXAMINATION, JUNE, 1965.

(7 marks).

(7 marks).

Stor - Miles the ta.

14x + 9 into two factors and show that is negative when x lies between 1 and 1.8. (6 marks).

(6 marks).

"a' in terms of 'b' and 'c'. (4 marks). the value of 'a'. (4 marks).

giving your answer correct to three" (6 marks).

pression for the nth term of the arithmetic (4 marks).

progression is bn + cn² find the values first thirty terms. (8 marks).

eventh terms of a geometric progression und he sum of the first and fourth terms st seven terms of the progression. (8 marks).

 $(x - 3)^2$ for values of x from -1/2 to 5, it on the x-axix and 0.2 inch for your good drawing of the curve, choose ervals of halves, beginning with -1/2. (5 marks).

ximate maximum value and an exact orresponding values of x which make y (5 marks).

the same diagram find the roots of the - 9.

(5 marks).

(iv) From these two graphs find the values of x for which the function $(x - 1)(x - 3)^2$ is always greater than (5x - 9). (5 marks).

2. A can walk a mile in a minute and time and made all a welking race, & has a tart of to will and & overtakes Bin 1 Utility and a property the values of g. and and a grant in the problem of the stand the share of a set of a spin set of a set state the the set of a s all have the internations and that is and the toget (it's fran Sh- mars into the this had been but to and a for E. B. Sintelly a ship is a winter sati the B wildtake. In a wildting the sate of a wild and A wouldlow & man winter a second of a single to be a single to b The (3) Compute by Equindence assumpting your work thankly : (der ag) x 0.0002049 " remains in he on? (22) Balaga- Elogo = 2 logo , find (2) in Strong & and c. (4-(ii) (into " Co. 4.4) = 2 . culled at the value of date and into the (2). Sales the logestion is - 2 - 3 given your comment burset to a deciminal per it alles and an and the state of the state o and the sure of the finguration is briddly of mill the walter of to a bar and the tree of the work that a state of a state of a state of a (i) The product of the first and assent time of a garantee fring water and division to the first of and the sund the had at a part of in the second the same is taken and the for the bar and the

altempt all preations in mining and a . (b) 2 - 2x+y = m : - find an expression for y in temp for and x. II. (i) Compute by logarithms arranging your work neatly : V 200 18° 47 x Sin 48° 21 (10.03)3 × 0.0002043 I. (i) boite down and suplify an expression for the ut time of the authentic progradien 3, 7, 11, man & and & and the sum of the first thirty thus.

Class : 4th Semilipit , sections 176 - Time : 8:00 - 11:00 a. ... (ii) Resolve into two factors: Con CASTA C-276 + a + 9ab c 7 m (iii) Reador 5x - 14x + 9 into two jactors and show that the value of this repassion is negative when a lies between 1 and 1.8 . (6 mere I. A Compalk a wife in 2 minutes bestine than B would take. In a walking race, B has a start of 4 mile and A sourtakes B in 10 minutes. Assuming both wen walk at a winform rate, find this rates I walking in milisper him. (& mashing (ii) Haloga-slogh = 3 loge, find (a) in terms of b and c. (4 merks) (iii) given log 4.41 = 2, calculate the value of a. (4 merke (#). Solve the equation 2 = 3 giving your answer correct to Edicining per If the sum of noterins of this progression is knowed, find the walks of (ii) The product of the first and seventh terms of a geometric progression is equal to the fault thing and the sum of the first a fairth terms is 3. Find the sum of the first scontoms of the progression.

to Might Dear think was placed your , 14 ci "It the the page of a said and and and and and a state the to a state of the said of a state of a s I. (i) braw the graph of y= (x-y (x-3) for values of x from - 2 to 5, interesting and for all this is the second of the second o choosing 0.5 inch for your unit on the x-axis and 0. 2 wichs for your with me the course to get in great down if the course get - unit on the y-axis. To get a good drawing of the curve, chosen a sussession of the adverter of the long a superior in the - successive values of x at intervals of habers, beginning with - 2. in and and a part in description of the form of (ii) From this grath find an approximate maximum and and and pracet minimum value for y and the coverbonding values man all parties to many dominant to make the standard (ii) have a marker at and the Court of a sold on the second of of x which make y a maximum or a minimum. (smarks they when it the with he with and the share it is a start with the (iii) By plotting another graph in the same diagram find the roots (5 marks) O replace progetice before to the to the total in the for the I. A. F. Sold at all a stringthe hatting is first all to be a first and the state of the state o F (IV) From these graphs find the values of x for which the function (X-1) (x-3) = is always greater that (5x-9). (smarks) and upday is guiden of atom wet bing aller any in a to shed and that : It is being the approximation on the open point at a first in the O the private and the second of the second o 1 202 18° 45 × 20 18° 21 (10.03) × 0.00010113 (ii) given by 4.41=2 , calculate the value of a. it and a given by a comment to a comment of a c haven a sea we and me the second a second the second in the second is again to the addition and is The C) which and an plifty an expression for the at line of the listination H. J. Jose was a los a sing war of the second and the second second progration 2, 7 , 11, stars the Hi and & the propriet is proved it is another of the fit 8 J insering enternast of anothetics and have by the tentral of the and the second sec mutit attempt they at a mint be a met thing at a men i insurgend at fourtainer taipet for a state of . 50 the second se

Solutions to Algebra Exam. Final Exam Fourth year, 1965 to Algertic anone there were place grand , 14 60 1. (i) $\frac{2x+y}{x+2y} = m$: 2x+y = mx+2my : y(2m-1) = x(2-m) : $y = \frac{x(2-m)}{2m-1} \frac{4my}{2m}$ the time and interesting on the part and are dealer for If y= mx then mx = x(2-m) : m(2m-1) = 2-m or 2m=2 is m=1 i m=1 1 free We der aphiel plice a to with the of the days, a deprimine at (ii) $c^{3} = 27b^{3} + a^{3} + 9abc = a^{3} + (3b)^{3} + a^{2} - 3a(c^{3}b)c$ = (a-3b+c) (a2+9b7c2+3ab - ac+3bc) tons. (iii) 5x - 14x + 9 into two factore : 5x - 14x+3 = (5x - 3) (x - 1) Ans. 1 and the second of the state of the second the second of the $5x^{2} - 14x + 9 = (5x - 9)(x - 1) = 5(x - \frac{9}{3})(x - 1) = 5(x - 1.8)(x - 1)$ when 152 < 1.8 the factor (2-1.8)=(-) and the factor (2-1)=(+) and a stand a stand the manufact of a stand with the = the product = (-) x(+) = (-) Q.E.D The by plitting matter graph in the name hay an find the roots 2 Let A'strate qualking = x mils/hr 7 : \$ \$ \$60 - \$ \$60 = 2 ', B's , ', ' = y mils/hr Since \$ = \$ \$ 0.9 mints for \$ \$ \$ cover i mile and, \$ = 1. " (any a trial caller of a serie . " and " and " (W) Flore transporter find terrowing it for the for the for the (mans) ... (E-43) Mature granter of the 19) ... (country) 1 60 - 60 = 2 - Q A tile 6 also promitte provine : distance A.C = 10 x = 20 miles the a state of and a state of a $BC = \frac{10}{60} \frac{1}{2} = \frac{1}{6}$ the second real and the second 2 2x - 2y = 3 or y = 2x=3 @ · Barris at a same to O from eq. D' 30x-30y=xy ---- 3 and from 3 we obtain in the stand of an in the second 30x-30 (2x=2)=x (2x=3) x 69x-60x+20=2x2-3x x a month grade a start a garage of =x+==x=== or (=x=15)(x+6)=0 = x = -6 indimute in an and a lease and an and the state of the the set of the set of the set or x = 15 = 7.5 mils/2, and for ex. 0 y= 2 = 2x10 = = 6 is y = 6 mils/in. Aus.

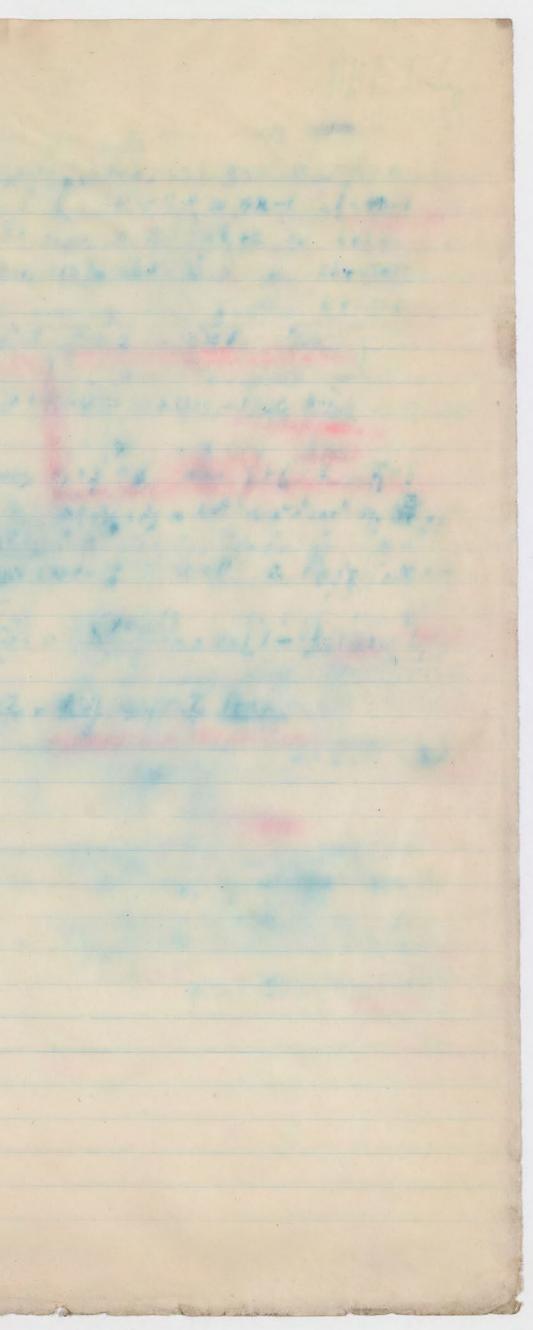
the Exain Final and Farth gran , 1985 3. (1) Let x = \$\frac{1}{(0.09)^3 \$\$ 0.000 20 49}\$ 12+ 1= mater (man -1) = x(2-m) = x(2-m) - y= x(2-m) $\frac{41}{41} = \frac{4}{2} = \frac{1}{2} = \frac{$ 2 log cross 47 = 7.9524 log con 18° 47 = 1.9762 3 log 10.09 = 3.0/11 log sin 48° 21 = 7+87 34 3 tog Sin 48 21 = T. 6202 log 0.000204 = 4.311 be that = ++ 0027= (a-26+5) (a+26+5 +26+5 +265 tog 11mm. = T. 5726 log 10.09 = 1.0037 いういいいいていたままいする いっていました い ちん うちをままま(ちゃー) メニノ ポルシリ bysen = hixi = 1. 3226 logo.0002049 = 4.3115 tog I en. 5 - 5 x - 14 - 5 - 5 (- 3) = 5 - (- 3) (- 3) = 5 - (A - 18) (A - 1) = 0.2500 or cr. 18° +7 = 0.9405 + ~ log co18° +7 = T.97°61 a les cars of super, 182 2 6.18 the calme (2-108) =13 is in the point the point of a last a = 0. 33571 = 0.0357 Greet to 4 (=) = (+) x (+) = to start to the start of t R. F. Carlo Stary Si 48° zi= 0, 74 72 = 1.086 Ans. " Log Sin 48 21 = T. 87 34 1. 18.1 = Wig - 4 De let a stante & within and the (i) i = obs - - obs - i all I be a statement as the (4) - 2 log co. 18°47 = T.9522 (ii) 2 log a - 5 log b = 3 log c , a =? log a - log k = log c or log a = log c 3 3 by sin 48°21 = 1.620 21 and the state of t Log Nam. T. 572 4 $\| \Rightarrow \frac{a^2}{b^5} = e^3 \Rightarrow a^2 = b^5 \cdot e^3 \Rightarrow a = b^{\frac{3}{2}} \cdot e^{\frac{3}{2}} + a = b^{\frac{3}{2}} + a = b^{\frac{3}{2}}$ log Den = 1.3226 if align you are got que : distance HC = 12 K = & mile 7 tog x = 0.2498 (iii) by 4.41 = 2 , R=? (+) tes a la ser se l'ai a tog x = 0.03568 = (4) Why i Call One Kalle and a frequence for the for the for " log x = 0.0357 Correctory decyl i at a figure a $: 4.41 = a^2 : a = \sqrt{4.41} = 2.111$ ~ x = 1.086 Ams. Com the state of the second (1) 2 = 3 Pin the Box- 30/00- 20 - 20 - 20 : (3-x) tog 2=(2x+1) tog 3 : 3 log 2 - x log 2 = 2x log 3 + log 3 : x (2 log 3 + log 2) = 3 log 2 - log 3 is a constant of the server of the first of the server of the : x = 3 log 2 = log 3 = log 8 - log 3 0.3031- 3.4771 = All and the first at all - a the second of t log 9 + log 2 1 0.9542 + 0.3010 2log 3+ log 2 1.2552 = 0.3393 ... = 0.339 Gra with " over faller & = 1 2

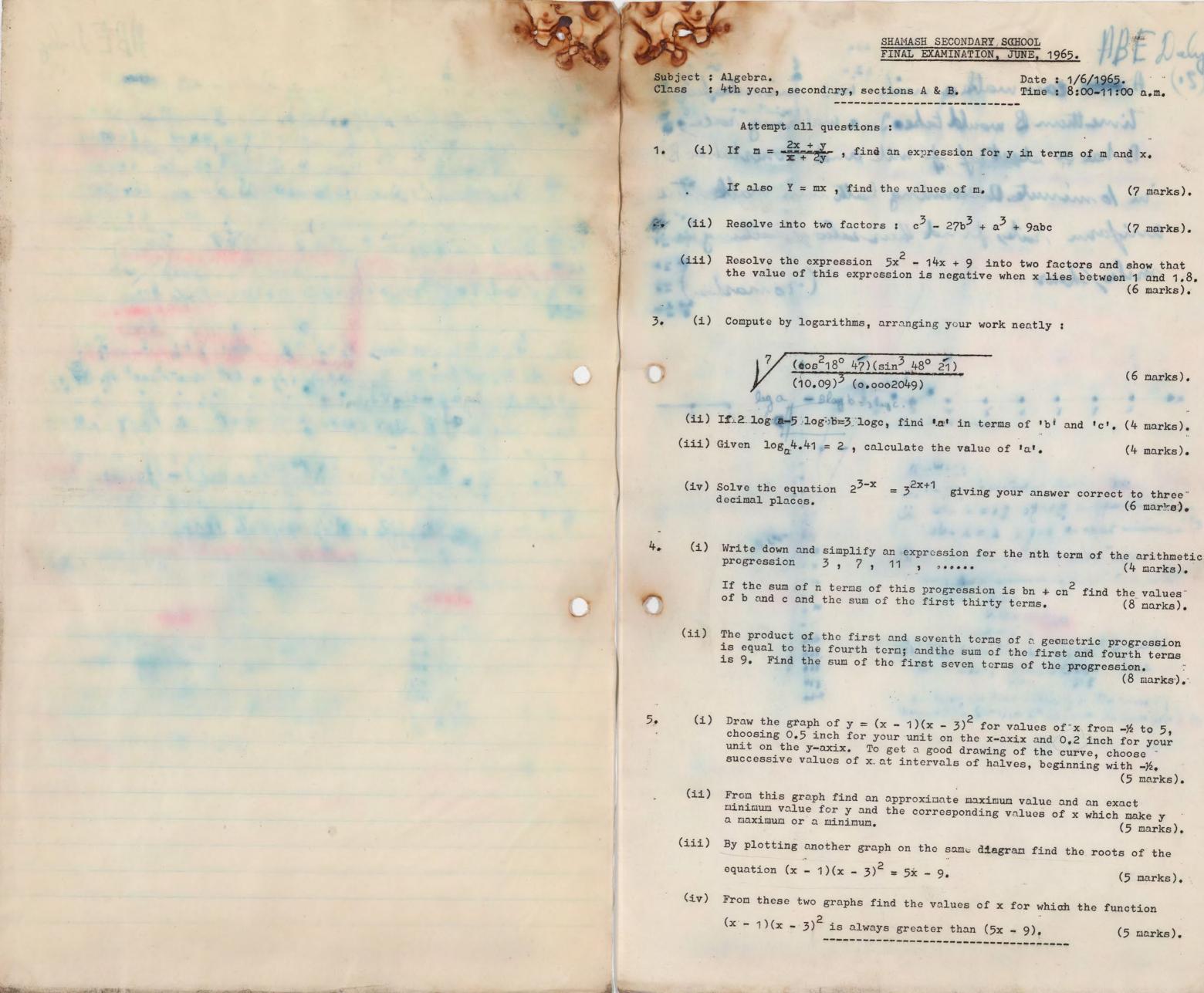
At Baise & goolgin and states and a second a a constant estart de martin constitut e fritore constitut a constant estart de martin constitut e fritore constitut a constant estart estart estart estart estart a constant estart estart estart estart estart constant estart estart estart estart estart estart estart constant estart es a love the part of a part of the contract of the and a the series of the s again s' ha have go got a at a gain offer the the the the the state and $\frac{1}{2} \int_{-\infty}^{\infty} \frac{1}{2} = \frac{1}{2} \int_{-\infty}^{\infty} \frac$ are a = 3 and a cara tog a = (a + a) tog a = (a x + a) tog a in x (adage + 192) = 3 ans - 92 ふ ろんのなー おんのも かるみ あきる とちのろう 1 2 = 500924 - 092 - 6035- 60 0.0 31- 91977 - 10077 - 10077 \$1000 = 8 6.0=

lin = a+(n-1)d : ln = 3+(n-1) ×4 = 4n-1 : l= 4n-1 linsel also lit n=2 is=3+7=10 = 20+clip a 20+4c=10 ...@ $\therefore \vec{N} = bn + cn^2 = 1 \times 30 + 2 \times (30)^2 = 30 + 1800 = 1830 \text{ fm}.3$ $-: S_{q} = \frac{16 \times 127}{128} = \frac{127}{8} = 15\frac{7}{8} \frac{1}{8} \frac{1}{8}$ a new at a gag men a did 1. 0 - -

4.90 A.P. 3,7, 11,000 here a=3, d=4, to Status = n, h=: Combinip eq. D+ D, weget C=2 : b=1 fm. (ii) In a G.P., we have $f_{x}f_{z}=f_{z}$ also $f_{z}+f_{z}=g_{z}$, $f_{z}=?$ det the first term be a $f_{z}(g)far) = ar^{3}$ or $ar^{2}=ar^{3}$ or $ar^{2}=1$ and also $a + ar^3 = g - Q: a + I = g : a = 8 : r^3 = \frac{1}{8} : r = \frac{1}{2}$ $a = 8 = \frac{1}{r} = \frac{1}{r$

4 Br Bill & Tellens has 202, det alf many & Lug = 2+(x-1) L 2 L= 2+(x-1) + = HR-1 2 L= 4R-1 1 Stabated that all a gester the destar in Anno 3=2:43 10 (iii) 2- a a. P. water hat 2 a des soft a series of a 1 1 1 = a 1-1 - a (1-a) - 1 a [1-1] a - 1 a [1-1] a - 1 a -





SHAMASH SECONDARY, SCHOOL FINAL EXAMINATION, JUNE, Date : 1/6/19 man. B (i) If $m = \frac{2x + y}{x + 2y}$, find an expression for y in terms of m and x. If also Y = mx, find the values of m. (7 marks). (7 marks). (iii) Resolve the expression $5x^2 - 14x + 9$ into two factors and show that the value of this expression is negative when x lies between 1 and 1.8. (6 marks). (6 marks). (ii) If 2 log a-5 log b=3 logc, find 'a' in terms of 'b' and 'c'. (4 marks). (4 marks). (iv) Solve the equation $2^{3-x} = 3^{2x+1}$ giving your answer correct to three (6 marks).

(4 marks).

(8 marks).

is equal to the fourth term; and the sum of the first and fourth terms is 9. Find the sum of the first seven terms of the progression. (8 marks).

unit on the y-axix. To get a good drawing of the curve, choose successive values of x at intervals of halves, beginning with -1/2. (5 marks).

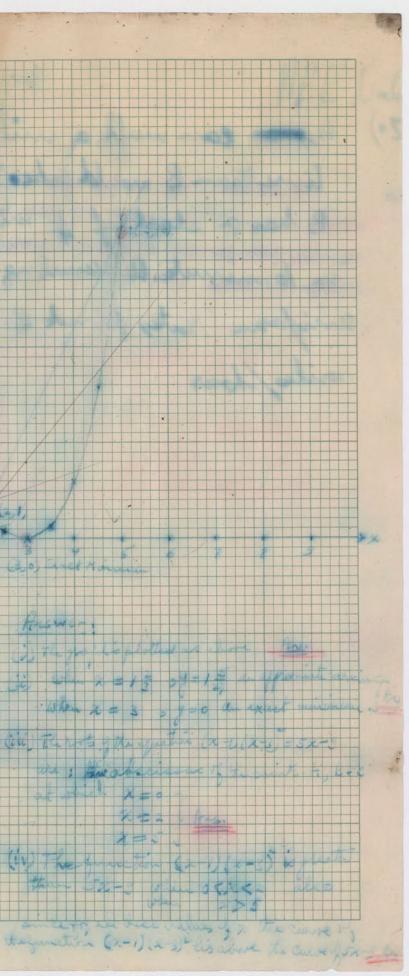
minimum value for y and the corresponding values of x which make y (5 marks).

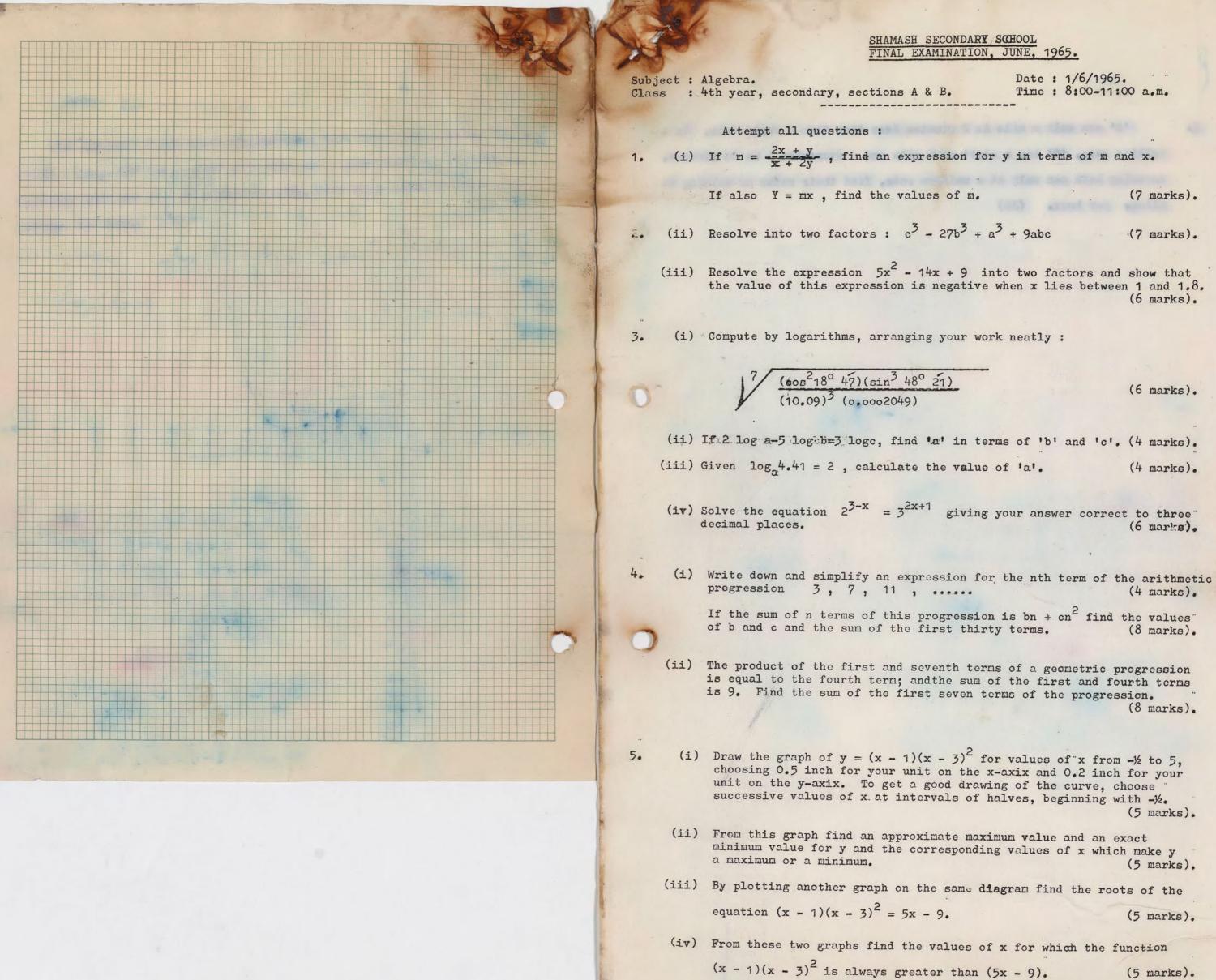
(5 marks).

(5 marks).

(2.) A con male a mile in 2 minutes Timethom B would take In a walking race ?? B has a start of 4 mile and Honestakes B to in to minute accuming bath wer walk at a uniform rates find their sales failling in . (To marles.) miles hour 0 - #1=Ko 21= 2 - 24 0 -10 -17 814

......





SHAMASH SECONDARY, SCHOOL FINAL EXAMINATION, JUNE, 1965.

> Date : 1/6/1965. Time : 8:00-11:00 a.m.

(7 marks).

(7 marks).

the value of this expression is negative when x lies between 1 and 1.8. (6 marks).

(6 marks).

(4 marks).

(6 marks).

(4 marks).

(8 marks).

is equal to the fourth term; and the sum of the first and fourth terms (8 marks).

(5 marks).

minimum value for y and the corresponding values of x which make y (5 marks).

(5 marks).

Look for question 2 at the back of this sheet.

(5 marks). P.T.O.

"A" can walk a mile in 2 minutes less time than B would take. In a walking race, 'B' has a start of 14 mile and A overtakes B in 10 minutes. Assuming both men walk at a uniform rate, find their rates of walking in Y = mx ; filled the values of miles, per hour. (20)

Add your, accountry, socilons A. & 1

(1) I formate by logart thin, arranging put work nootly :

(10, 69) (10, 60, 60, 60, 90, 91) (141) Given lo anis out of anistica , anistication of fat.

men it ... i apindorgan

interes put beit "nei+ ad at not energy attis to dures a lo due off 11

(11) The product of the fact and dowing terms of a section of the section of the section to the

The Marsh of Marsh

P.T.O.

Look for enertion 2 at the back of this sheet.

- Subject : Algebra. Class : 4th year, secondary, sections A & B. 1. If also Y = mx, find the values of m. (ii) Resolve into two factors : $c^3 - 27b^3 + a^3 + 9abc$ 24 (i) Compute by logarithms, arranging your work neatly : 3. $\frac{(608^{2}18^{\circ} 47)(\sin^{3} 48^{\circ} 21)}{(10.09)^{3} (0.0002049)}$ decimal places. 4. progression 3, 7, 11, of b and c and the sum of the first thirty terms. 5. (ii) From this graph find an approximate maximum value and an exact a maximum or a minimum. equation $(x - 1)(x - 3)^2 = 5x - 9$.
 - $(x 1)(x 3)^2$ is always greater than (5x 9).

SHAMASH SECONDARY, SCHOOL FINAL EXAMINATION, JUNE, 1965. Date : 1/6/1965. Time : 8:00-11:00 a.m. Attempt all questions : 0. (i) If $m = \frac{2x + y}{x + 2y}$, find an expression for y in terms of m and x. (7 marks). Section Print (7 marks). (iii) Resolve the expression $5x^2 - 14x + 9$ into two factors and show that the value of this expression is negative when x lies between 1 and 1.8. (6 marks). (6 marks). (ii) If 2 log a-5 log b=3 log find 'a' in terms of 'b' and 'c'. (4 marks). (iii) Given $\log_{2} 4.41 = 2$, calculate the value of 'a'. (4 marks). (iv) Solve the equation $2^{3-x} = 3^{2x+1}$ giving your answer correct to three (6 mar!-s). (i) Write down and simplify an expression for the nth term of the arithmetic (4 marks). If the sum of n terms of this progression is bn $+ cn^2$ find the values (8 marks). (ii) The product of the first and seventh terms of a geometric progression is equal to the fourth term; and the sum of the first and fourth terms is 9. Find the sum of the first seven terms of the progression. (8 marks). (i) Draw the graph of $y = (x - 1)(x - 3)^2$ for values of x from -1/2 to 5, choosing 0.5 inch for your unit on the x-axix and 0.2 inch for your unit on the y-axix. To get a good drawing of the curve, choose successive values of x at intervals of halves, beginning with -1/2. (5 marks). minimum value for y and the corresponding values of x which make y (5 marks). (iii) By plotting another graph on the same diagram find the roots of the (5 marks). (iv) From these two graphs find the values of x for which the function (5 marks). Land for question of the work of the shart ford

"A" can walk a mile in 2 minutes less time than B would take. In a walking race. 'B' has a start of % mile and A overtakes B in 70 minutes. Accuming both men walk at a uniform rate, find their rates of walking in miles, per hour. (20) (11) Receive into two factors : a - 2763 + a + 9aba

the value at this exceeded on is negative when a lice between 1 and 1.8.

1. 16/1965

84, <u>fize) (00 000</u> (00.000) (00.0000)

the TRE los and log and the selling of the targe of '8" and 'a'.

(1) White down and campilly an expression for the sth term of the artichest -3, P. M. . Marker

If the sum of a terra of this programming is ba + of that the values

(11) The product of the first and seconth forth of a gommetric progression is equal to the fourth terms midthe out of the first and the progression. Is 9. Find the sum of the first secon terms of the progression.

(1) Draw the graph of $\tau = (x - 1)(x - 3)^2$ for values of x from -1, to 5. and mont 5.0 how when your wait on the x-axis and 0.2 then for unit pu the y-axis. To got a good drowing of the ourve, shoone oucoust the tales of a latervale of balves, beginning with -M.

(11) From this graph find an approximate marinum value and an exact administration for y, and the corresponding values of x which area y a maximum or a continue.

(is - s) and respect by a st 2(t - s) (t - s)

Subject : Algebra. Date : 1/6/1965. Class : 4th year, secondary, sections A & B. Time : 8:00-11:00 a.m. Attempt all questions : 1. (i) If $m = \frac{2x + y}{x + 2y}$, find an expression for y in terms of m and x. If also Y = mx, find the values of m. (7 marks). the literary (203 + 0 123 (ii) Resolve into two factors : $c^3 - 27b^3 + a^3 + 9abc$ (7 marks). (iii) Resolve the expression $5x^2 - 14x + 9$ into two factors and show that the value of this expression is negative when x lies between 1 and 1.8. (6 marks). (i) Compute by logarithms, arranging your work neatly : 3. $\frac{(605^{2}18^{\circ} 47)(\sin^{3} 48^{\circ} 21)}{(10.09)^{3} (0.0002049)}$ (6 marks). (ii) If 2 log a-5 log b=3 logo, find 'a' in terms of 'b' and 'c'. (4 marks). (iii) Given $\log_{10} 4.41 = 2$, calculate the value of 'a'. (4 marks). (iv) Solve the equation $2^{3-x} = 3^{2x+1}$ giving your answer correct to three" decimal places. (6 mar!-s). (i) Write down and simplify an expression for the nth term of the arithmetic 4. progression 3, 7, 11, (4 marks). If the sum of n terms of this progression is bn $+ cn^2$ find the values of b and c and the sum of the first thirty terms. (8 marks). (ii) The product of the first and seventh terms of a geometric progression is equal to the fourth term; and the sum of the first and fourth terms is 9. Find the sum of the first seven terms of the progression. (8 marks). (i) Draw the graph of $y = (x - 1)(x - 3)^2$ for values of x from -1/2 to 5, 5. choosing 0.5 inch for your unit on the x-axix and 0.2 inch for your unit on the y-axix. To get a good drawing of the curve, choose successive values of x at intervals of halves, beginning with -1/2. (5 marks). (ii) From this graph find an approximate maximum value and an exact minimum value for y and the corresponding values of x which make y a maximum or a minimum. (5 marks).

> (iii) By plotting another graph on the same diagram find the roots of the equation $(x - 1)(x - 3)^2 = 5x - 9$. (5 marks).

(iv) From these two graphs find the values of x for which the function $(x - 1)(x - 3)^2$ is always greater than (5x - 9). (5 marks).

hand because a time much the bearing of this sheet, if the

Look for weektome a to beautof this sheek. P.T.O.

SHAMASH SECONDARY SCHOOL FINAL EXAMINATION, JUNE, 1965.

"A" can walk a mile in 2 minutes less time than B would take. In a walking race, 'B' has a start of % mile and A overtakes B in 10 minutes. Assuming both men walk at a uniform rate, find their rates of walking in miles, per hour. (20) tath Bachtye Into the toptores a - 200 . of a Sabe

(6, marick), ···

(d) . despute in light that, "arranging your work nostly !!

(Ps-64 / thtp://www.all.

(servery A) what have id' to serve at the next sound to be the to a tak . tol to outer and addication . S' = two and math first

1 . .

(1) Netty down annolisty on experimented the and bonn of the most of the instance.

100

ter en eine to the tours the the seven touts of the weeks the seven tours to the second to the second touts of the second tout

Buch the maps of $y = (x - 1) dx - 3)^2$ for volues of x from 48 to 59 showing 0.5 and for your unit on the x-axix and 0.6 and dor your math on the y-axis. To get a good drowing of the purve, directly 1 100 m

frem bils grayh, that an approximpte martenin volue and en exact plainten value the rang the courresponding volues of a which miles a anations or a structure. By plotting another graph on the came at nearly the rister of the

the stell apple to story a work or the first - a

SHAMASH SECONDARY, SCHOOL FINAL EXAMINATION, JUNE, 1965. Subject : Algebra. Date : 1/6/1965. Class : 4th year, secondary, sections A & B. Time : 8:00-11:00 a.m. Attempt all questions : as advanta 5 as allow a plan and 1.1 2.00 (i) If $m = \frac{2x + y}{x + 2y}$, find an expression for y in terms of m and x. 1. both ann welk at a welform rate, find their rates of wells and get If also Y = mx , find the values of m. (7 marks). milery per hour. (20) (ii) Resolve into two factors : $c^3 - 27b^3 + a^3 + 9abc$ 2. (7 marks). (iii) Resolve the expression $5x^2 - 14x + 9$ into two factors and show that the value of this expression is negative when x lies between 1 and 1.8. (6 marks). (i) Compute by logarithms, arranging your work neatly : 3. $(608^{2}18^{\circ} 47)(\sin^{3} 48^{\circ} 21)$ $(10.09)^{3}$ (0.0002049) (6 marks). (ii) If 2 log a-5 log b=3 loge, find 'a' in terms of 'b' and 'c'. (4 marks). (iii) Given $\log_{a} 4.41 = 2$, calculate the value of 'a'. (4 marks). (iv) Solve the equation $2^{3-x} = 3^{2x+1}$ giving your answer correct to three decimal places. (6 marks). 4. (i) Write down and simplify an expression for the nth term of the arithmetic progression 3, 7, 11, (4 marks). If the sum of n terms of this progression is bn + cn² find the values of b and c and the sum of the first thirty terms. (8 marks). (ii) The product of the first and seventh terms of a geometric progression is equal to the fourth term; and the sum of the first and fourth terms is 9. Find the sum of the first seven terms of the progression. (8 marks). (i) Draw the graph of $y = (x - 1)(x - 3)^2$ for values of x from -1/2 to 5, 5. choosing 0.5 inch for your unit on the x-axix and 0.2 inch for your unit on the y-axix. To get a good drawing of the curve, choose successive values of x at intervals of halves, beginning with -1/2. (5 marks). (ii) From this graph find an approximate maximum value and an exact minimum value for y and the corresponding values of x which make y a maximum or a minimum. (5 marks). (iii) By plotting another graph on the same diagram find the roots of the equation $(x - 1)(x - 3)^2 = 5x - 9$. (5 marks). (iv) From these two graphs find the values of x for which the function $(x - 1)(x - 3)^2$ is always greater than (5x - 9). (5 marks). Look to grant or grant the breach of this theet. Str 1 - 2 0.

'A' can walk a mile in 2 minutes less time than B would take. In a walking race, 'B' has a start of 14 mile and A overtakes B in 10 minutes. Assuming both men walk at a uniform rate, find their rates of walking in miles, per hour. (20)

there is the

1. <u>1.</u>

Bate : 1/6/1965

1. 2. 200 - 2. 00- 2. - 00 all

ADB LE

delysida Barolity , anox lite a d'

(A hank

2.

it's The product of the first and severith terms of a secondarde presidence

(1) Brow the graph of y = (x - 1)(x - 3)² for volume of x from -(i to 5) shoosing 0.5 then for your unit on the x-axis and 0.2 then if your unit on the y-atin. So god drowing of the curve, chore, successive values of x at intervals of balves, beginning site. -(= j //

1in doldy's to soulet gathe corresponding values of soler comini-15 15

(iv) From these two graphs find the volume of x for which the Mart (1)

100k for marting 2 at the back of this shart,

Subject: Algebra Class: 4th Secondary .

Attempt all quest

Prove that: $(a-a^{-1})($ 1. (a)

(b)

2.

3.

Evaluate: $\frac{x^2 + xy}{xy - y^3}$

Solve the equation:

Find x from the equa

4.

 \bigcirc

neatly:

(1, Sir

SHAMASH SECONDARY SCHOOL 4th Quarter Examination, May, 1965.

$$a^{\frac{4}{3}} + a^{-\frac{2}{3}} = \frac{a^2 - a^{-2}}{a^{-\frac{4}{3}}}$$
 (13 marks)
 $-\frac{\sqrt{x}}{\sqrt{x-y}}$ (13 marks)

$$\frac{6\sqrt{x}-7}{\sqrt{x}-1} = \frac{7\sqrt{x}-26}{7\sqrt{x}-21}$$
 (25 marks)

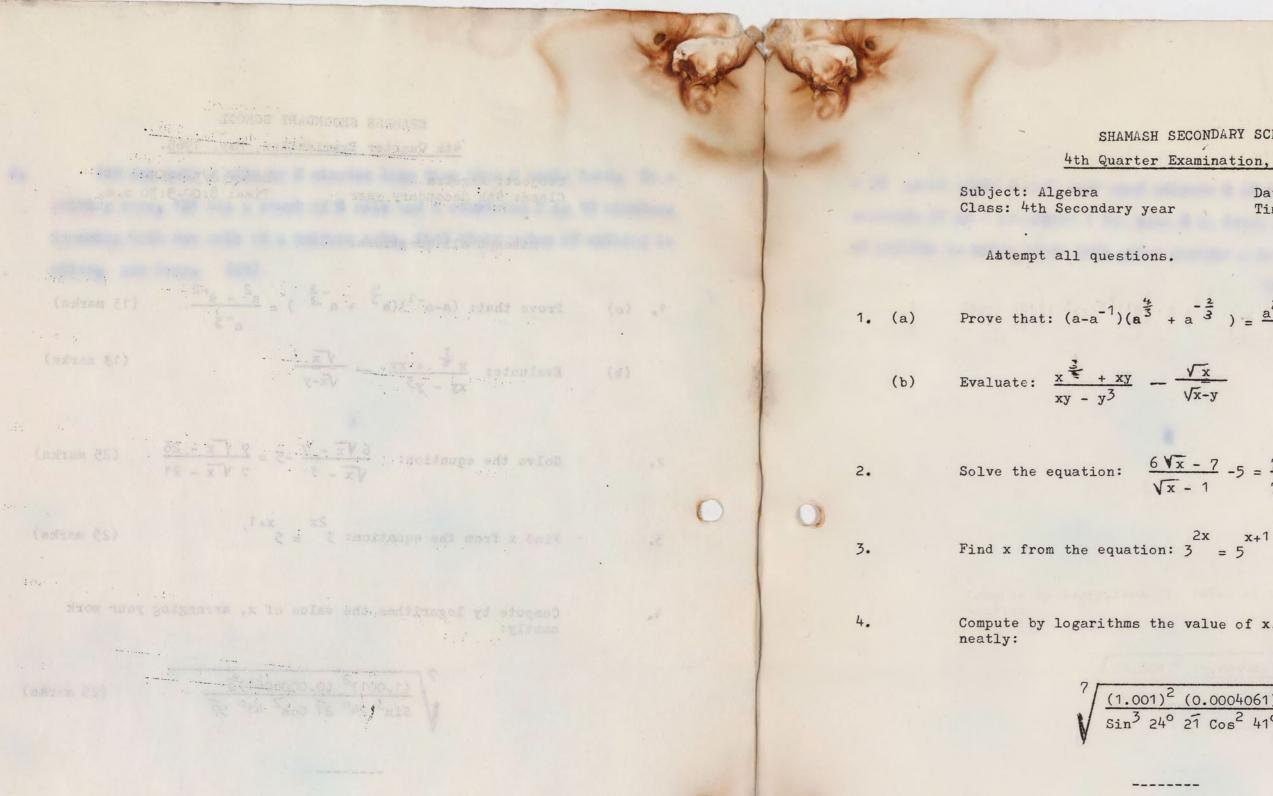
$$2x x+1$$

tion: $3 = 5$

(25 marks)

Compute by logarithms the value of x, arranging your work

$$\frac{(0.0004061)^{\frac{3}{2}}}{(0.0004061)^{\frac{3}{2}}}$$



SHAMASH SECONDARY SCHOOL 4th Quarter Examination, May, 1965.

$$a^{\frac{4}{3}} + a^{-\frac{2}{3}} = \frac{a^2 - a^{-2}}{a^{-\frac{4}{3}}}$$
 (13 marks)
 $-\frac{\sqrt{x}}{\sqrt{x-y}}$ (13 marks)

$$\frac{6\sqrt{x}-7}{\sqrt{x}-1} -5 = \frac{7\sqrt{x}-26}{7\sqrt{x}-21}$$
 (25 marks)

(25 marks)

Compute by logarithms the value of x, arranging your work

$$\frac{(0.0004061)^2}{(0.0004061)^3}$$

Lares (14) Secondary years State: #10098130 auto . That the is a start

. The second sec

Frove that: (0-0, 1)(a + 0, 1) a did over a the second second

Svelester - XX - ZX rossileve

Solve the equation: $\frac{6\sqrt{x}-2}{\sqrt{x}-4} = 5 = \frac{7\sqrt{x}-26}{2}$ (25 earks)

to any manager to a second of a second of the other

.....

- <u>Fridorian an Briton an</u> . The state Briton Bit Part Sound .

Prove that: $(a-a^{-1})(e$ 1. (a) Evaluate: $\frac{x^2 + xy}{xy - y^3}$ (b)

.

2.

3.

4.

0

.

.

.....

.

0

Solve the equation:

Find x from the equation: 3 = 5

neatly:

<u>(1.</u> Sin

SHAMASH SECONDARY SCHOOL

4th Quarter Examination, May, 1965.

• • Date: 2/5/1965 Subject: Algebra Time: 8:00-9:30 a.m. Class: 4th Secondary year

5

Attempt all questions.

$$a^{\frac{4}{3}} + a^{-\frac{2}{3}}) = \frac{a^2 - a^{-2}}{a^{-\frac{4}{3}}}$$
 (13 marks)
 $-\frac{\sqrt{x}}{\sqrt{x-y}}$ (13 marks)

$$\frac{6\sqrt{x}-7}{\sqrt{x}-1} -5 = \frac{7\sqrt{x}-26}{7\sqrt{x}-21}$$
 (25 marks)

2x x+1

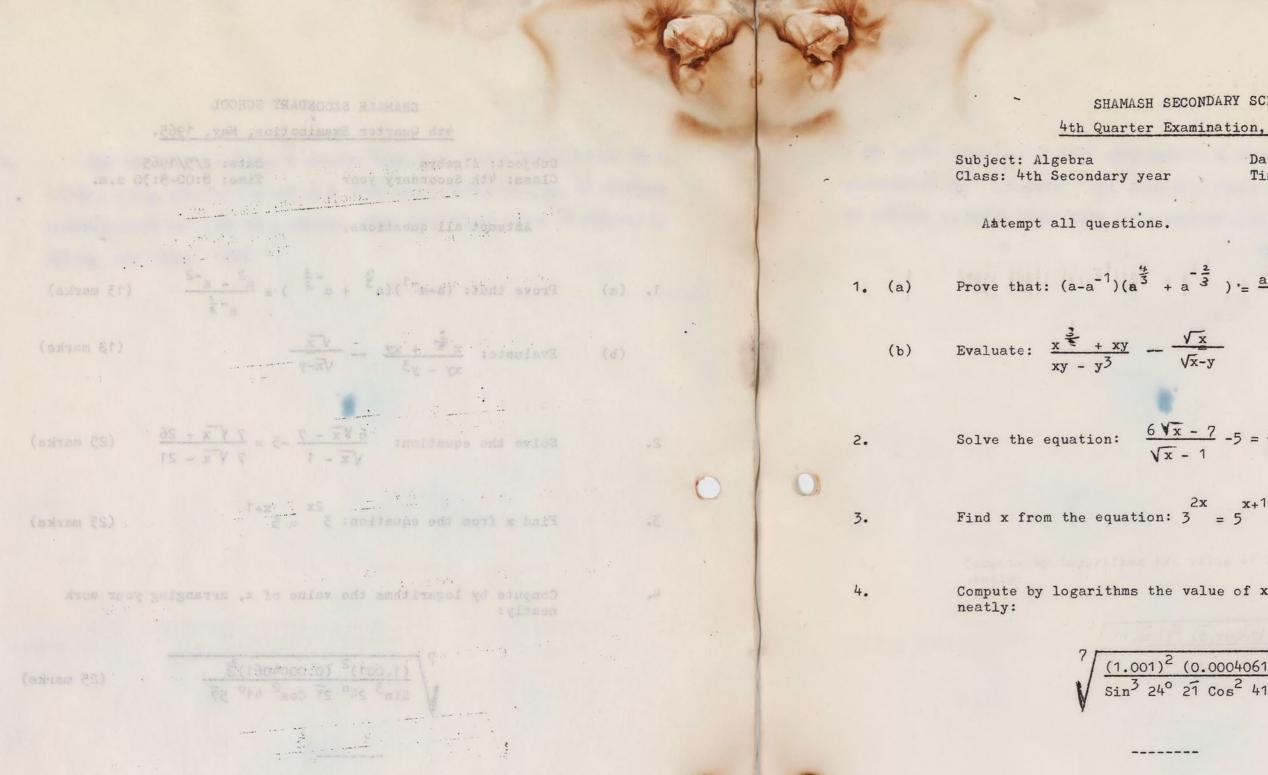
(25 marks)

.

marks)

Compute by logarithms the value of x, arranging your work

00	01) ²	(0.	.00040	061)	
			Cos ²		



SHAMASH SECONDARY SCHOOL

4th Quarter Examination, May, 1965.

Date: 2/5/1965 Time: 8:00-9:30 a.m.

Prove that: $(a-a^{-1})(a^{\frac{4}{3}} + a^{-\frac{2}{3}}) = \frac{a^2 - a^{-2}}{a^{-\frac{4}{3}}}$ (13 marks) (13 marks)

$$\frac{6\sqrt{x}-7}{\sqrt{x}-1} -5 = \frac{7\sqrt{x}-26}{7\sqrt{x}-21}$$
 (25 marks)

(25 marks)

Compute by logarithms the value of x, arranging your work

$$(0.0004061)^{\frac{2}{3}}$$

 $(0.0004061)^{\frac{2}{3}}$
 $(24^{\circ} 21 \cos^{2} 41^{\circ} 57)$

			S	
the top the terms of the state		T		Shamash Seco
		-	Non I	<u>3rd Quarter Exa</u>
the fugition france the set of the top of the			Mary or	Subject: Algebra Class : 4th Year, Section
AND A CARLES A COMPANY AND A CARLES AND A				
Claust 4th Decondary year 12me: 8:00-9:30 a.m.				Attempt all questio
Antoires ils ignoid.				1. Solice simultaneously, the en
				(i) $x^{2} - 2xy + 8y^{2} = 3 (1)^{7}$ $3xy - 2y^{2} = 4 (2)^{7}$
Prove that: (a-e ⁻¹)(e ² + a ²) = 0 ² e ⁻² (15 marks)	(a)			$5\chi y - 2y^2 = 4 (2)$
				2105how Hart 27, 2,3 14437
				ZijShow that 27-8x3-6443-72 Find the protient in this
x-xy Vx-y				(i) Resolve into six factors
				(vii) Fuidtt and 2 4 22
(astan CS) 35 - EVS - F. S XV - Constrants and av Las	•			(iii) Findthe value if x + x'y'+ y' given: x+y= 2a and x-
(astan (S) IS - 2 V T I - 2V				1 rg-2a and x-
			0	Or a man arrive by air at the air
Find a from the equation 3 as 200 (25 method)				than the scheduled time, and sot
				hause at the rale of so miles her
and the second secon	• *			supposed to loave this ma
Compute by logarithms the value of x, arranging your park neetly:				a chechilit of time - did no
water of the second of the				his on the road to the airport af ear for a distance 2 only 50 r ortely picked his meater and the
Contract 200				otely picked his master of the
Castara 25) Te ord Cast TS Out The St				exactly 22. to and it
				exactly 30 minutes earlier than tar is the man's find in the
				far is the man's house from the
			0	$q_{ij} = t + i + t + t$
				4.(i) Determine the asymptotes for values of x from x = -2 to the x-axis and 0.4 meh c
				the $x = axis$ of x from $x = -2$ to
				(ii) Deniett und dit men
				(ii) Draw in the same diagram same value of x ii Fron your diagram find o
				il From your diagram find o
				(a) the value of 1.3
				(b) two positive numbers (
				Show in your diagram how

ondary School amination, March, 1965 Date: 14/3/1965 Time: 10:15 - 11:45 a.m. (B) ---ons: quations: $(13 \text{ modes}) | (ii) (x-2)(y-1) = 3 \dots 0 (12 \text{ mayby})$ (x+2) (2y-5) = 15 - (2) (12 mayby)2xy is divisible by 3-2(x+2y) and way. x13- y18 (8 marks). y in terms of a and b, having y = 2b (9 marks) is port of his city of gan hour earlier to out at once by a taxe, driving to his in hour. At the same time, his driver aster's house to meet him at the airfort according to plan and, instead, met fter he has driven his masters private miles from his house. He minudi med lack to his home reaching it in was originally expected. How e airport and at what rate was (25-martes) and draw the enror of $y = \frac{x}{x-1}$, in x = 4, taking 1 inch as the unit on as the mit on the y-axis. (7 marks) the graph of y = x(x-1.5) for the (7 marks) as accurately as possible (smarles) differing by 1.5 whose product is (6 martes). each answer is obtained.

Subject: Algebra Class: 4th Year Secondary, Scientific Section. All questions are to be attempted. (a) The expression x²+px+q reduces to zero when x equals 2 or 4. Find the values of x for which this expression equals 48. I. (b) The expression $x^{4} + ax^{3} + bx^{2} + cx + 12$ is factorable into (x-1), (x+1)(a) At what time between eleven and twelve o'clock will the two hands II. of a watch be at right angle for the second time ? 0 (b) A car covers the distance between Mosul and Baghdad in five hours, III. (a) If $\log_2 (4x-4) = 2$, find the value of $\log_4 x$. (b) Compute by logarithms, arranging your work neatly: $\frac{(0.1062)^2 \times (0.0071)^3}{(1.005) \times (3.007)^5}$ IV. (a) If a body falls from rest, (neglecting the friction of the air) it second, 80 ft during the third second, 112 ft during the fourth second and so on. (b) In a Geometric progression, 1023 times the sum of the first five the common ratio.

Shamash Secondary School Conditional Examination, Sept. 1964

> Date: 2/9/1964 Time: 8:00 - 11:00 a.m.

(10 marks)

and (x+3). Find the values of a, b, c and the other factor. (10 marks)

(10 marks)

travelling on the route which lies on the right bank of the river Tigris. Another car travelling at an average speed which is less by 20 kilometres than the first, covers the distance between the two cities which lies on the left bank of the Tigris and which is 50 kilometres longer, in 71/2 hours. Find the length of each course. (10 marks)

(10 marks)

(10 marks)

will fall 16 ft during the first second, 48 ft during the second

Find the number of seconds it will take a stone to reach the bottom of a well 1936 ft. deep, if it is dropped from the top of the well. (10 marks)

terms is equal to 31 times the sum of the first ten terms. Find

(10 marks)

(cont'd.p.2)..

All questions are to be attempted. (a) The ambrediated request to zero when x equals 2 or Find the velues of x for which this expression equals 48.

and (x+3). Find the values of a, b, a and the other factor.

(a) At what then between eleves and twelve of clock will the two bands

treavelling on the route which lies on the right bank of the river Tigris. Another car travelling of an average greed which is lead by 20 kilometree than the first, covers the distance between the two offices which lies on the left bank of the Tigris and which is 50 kilometres longer, in 3% hours, Field the length of yeek conces,

TIT. (a) If log: (4-+) = 2, find the value of log. F.

	. 5d	and the		
			(0,1062) = x (0,00)	
104 8	:		a de la companya de	

IV. (a) If a body falls from rest, (neglecting the friction of the sir) it will fell 15 it during the first second, 48 it during the second second, 80 ft during the third second, 172 ft during the fourth

ascond and so on. of a well 1936 ft. deep, if it is dropped from the top of the well.

(b) In a Geometric programming, 1025 times the sum of the first five terms is equal to 51 times the sum of the first ten terms. Find the domnon ratio.

Conditional Exam.in Algebra for the 4th Year, Sept. 1964. (cont'd.) -----

V. (a) Sketch the curve of the function (x^4-8x^2) for values of x from -3 to 3 choosing ½ inch as one unit on the x-axis and one tenth of an inch as one unit on the y-axis.

values.

(c) Plot on the same diagram the graph of y=3x-10 and from these two graphs find the solution of the equation $\frac{4}{x}-8x^2+10=3x$.

-p.2-

(8 marks)

(b) From this curve find the values of x at which the function (x^4-8x^2) has minimum or maximum values. Find also these minimum and maximum

(6 marks)

(6 marks).

All year, Sept., 1964 seares sature afferter affer for the sature affer the for the sature and a sature of the sature and a sature of the sature and a sature of the Subtrating quation @ from @, we get 12 + 2p = 0 or $p = -6^{-1}$ = 1 - 0 + -12 + q = 0 = q = 8 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 0 = q = 8 = 1 - 12 + q = 12 + q = 0 = 0 = 1 - 12 + q = 12 + q = 0 = 0 = 1 - 12 + q = 12 + q = 0 = 0 = 1 - 12 + q = 12 + q = 0 = 1 - 12 + q = 12 + q = 0 = 1 - 12 + q = 12 + q = 0 = 1 - 12 + q = 12 + q = 12 + q = 0 = 1 - 12 + q = 12 + q = 12 + q = 12 + q = 0 = 1 - 12 + q = 12 +ming with represent the second the second second x = 10 + 8x x = -4 + Has.(a (b)) From this curve find the values of x at shich the function has minimum or maximum values. Find also these minders and (b) x + ax + bx + cx + 12 will be equal to zero when x = 1, -1, or -2 Since (x-1) and (x+1) and (x+3) are factors. Substituting x=1, ititations and the solution of a long and the solution weget 1+a+k+c+12=0 --- O. substituting x = -1, weget: (c) Flot on the sume diagram the graph of y= 3x-10 and from these two graphs find the solution of the equition x 3x 3x 10 = 3x. 1-2+6-0+12=0--- Q. . . x=-3, wegets 81-27a+3b-3e+12=0 - - - 3. adding equations (1) + Q, we get: 2+2k+24=0 02-2k=-26 82 b=-13 dividing equal by 2, reget 27-9a+3b-c+4=0 or 27-9a+3(-13)-c+4=0 or in appropriate the second state and the second second and 3 a + c + 8 = 0 ... Q . But from Q we get a a sec all a second a second a second a second 12+C =0 O. Subtracting @ for Duest Build in the state of the second second 8a +8 = 0 or a = -1. substituting is D 1 - the last the second and the second we get 1-1-13+e+12=0 or c=1 : a=-1,b=-13, c=1 the indiana to 1=3 de server ton man the specific is a the point of the Hence the expression is X = X = 13 x + X + 12 \$ (x-1)(x+1)(x+3) = (x'-1)(x+3) = x+3x+++== ii the fourth factor = The service of the service attacked in the participants (x - x - 12 x + x + 12) - (x + 3x - 3 = x - 4 Ans. 2 Level 1 - x = (- Rosars) + (at - x - x - x - x $\frac{\chi_{-x}^{4} - 13\chi^{2} + \chi + 12}{\chi_{+3}^{4} - \chi^{-} - 5\chi} = \frac{\chi_{+3}^{2} - \chi_{-3}^{-}}{\kappa - 4}$ $- 4\chi_{-1}^{2} - \chi_{+4}^{2} + \chi_{+14}^{2}$ 2 2 2 - 112 + X + 1 - 1 × 1 × 1 × - 2 × 2 × - 2 アンタンテモン シーンシャー -4x -12x + +x+121 - + Kornet prove the I. a) det the time he x montes after 14, then hal 12 1. By the how hand will be pointing the divisions the Ballion after 11. How are de= 5- 1/2 A-2- DAL WAR A Standa (8 7 6 5 /2 $\therefore X + He BC = 45 of x + 5 - \frac{x}{12} = 45$ $\therefore \frac{11x}{12} = 40 or 11 h = 480 or x = \frac{480}{11}$ a he seeds so perfects all and a lite a lite of the OL X = 11x5 + #2-15 W. X = 11×5 + 12-15 He x = 4 37 min. = 43.63 min = 43 min 38 = secondo at x= 554 in and and the second and the AVER = 1 . La Las $\chi = 40 + \frac{\chi}{12}$ is the time is 43 min 38 # sic. after eleven Anse

aspertant and the Alt a de trans te de la literation printe de parte de parte The state of the state and the state of the they a second of the stars and a love to (1) R + 25 + 62 + C2+12 and a ender the and the Kars- 13 - 13 - 2 en stid (glas) ? # & (a office log # 1) der ter for a site thing x = 1 and the set of th . The proting by 4478 and and x way is all and a 1 - 28 20 - That the a the and a stable of a stable of a later of a sined the is a starte of the start hindrig affer at -7- telt the correct on 27-20000000000 a strong to git within . There to the fit to be and the is I therefore and an a set , substitution of a statistic and to and a some some to such a some the second and and a some the second and the second and the second as the seco Handar to say how and i gold to the " 13 th the best of the formate and a second in any the prince is the second and the second and in the bould in and the x-x-12x+x+1+ [x+1x=0-1: = 11. x+25 X+2X'-X=2X_ 1X-1-JX = 2.4= 10 = 2.4= 11 - 1 - 1 - 1 -+X-1-X++X+19 2. X = 0.02999 21 8.899 100 1-1+ 1++ ++ +-1 - ++-The second part of the second The set the set you as alighten the things a give the set at the mount of a handred the shears in the - the the the static a gate water the is a set and and

a to a dr a to a the addes interest to add the to the addes

The ext the loop of the inter open in all and the second the secon is to the in the wind of some the wind at it with the se

is tog & = tog 2 = 1 Aus, (b) Let x= 7 (0.1064) - (0.0071) 3 (1.005) (3.007) 5

2=16, el=32, N=1336, n=?

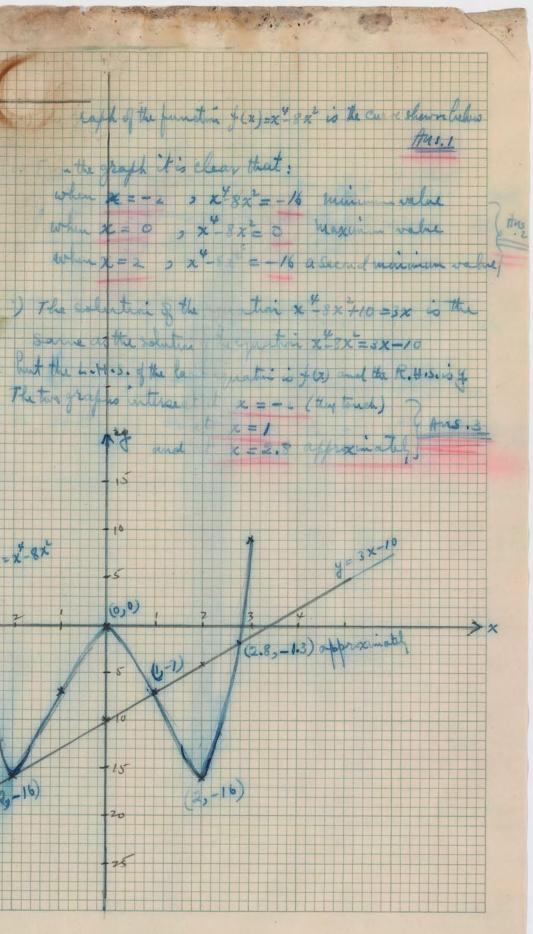
 $\frac{10}{3 \times -2 \times -100} = 300 \text{ or } \chi = 400 \text{ Km} \cdot \frac{9}{405 \times -2} (2+50) = 300$ $3 \times -2 \times -100 = 300 \text{ or } \chi = 400 \text{ Km} \cdot \frac{9}{405 \times -2} = 100 \text{ m} \frac{9}{400} \text{ fits}$ III (a) If $\log (4x-4) = 2$, then $\log x = ?$ How the equation we get $4x-4=2^{2}$ or 4x-4=4 is x=2how $\log x = \log 2 = 4$ is $2=4^{2}$ or $2=2^{24}$ is 2=1 if 2=2log 0, 1062 = T. 0261 2 log 0, 1062 = 2, 0522 | log 1.005= 0.0021 log 0.0071 = 3. 8513 3 log 0.0071 = 7.5539 5 log 3.007= 2.3905 Olog 1.005 = 0.0021 log Num. = <u>J. 60 61</u> log Den. = 2,3926 log 3.007 = Dx 4781 log Den. = 2.3926 7 log x = 17. 2435 log x = 2.45907 = 2.4591 Connet to + die, : X. = 0.02878 52 = 2.378 ×10 + Aus, I as The distances fallen during the consecutive second, heginning with the first are : 16 + 48+80+ 112 + ... which is the sum of our the P. in which Fronthe formula 2 = = = = = + (n-) dy we get: 1936= = 2 = 2x16 + (n-1)x32] or 2×1936= ng 32+32n-32p or 32n=3872 or n= 121 orn=11 in the number of seen as which will take the store to reach the bottom = 11 see

and the second that the set is a second the an an a statistic of pristant and all the statistics of the statis Ex-exploreson on hit too the Hard I = Hothugh ghap is a prema (set 1) " and we we we we have the the ball and the and and They is propagate if the cological of the cological of the the the . the equation in get 42-4=2 or 4x-4=4 is x=2 0 " = y = 1 = y = 1 = 2 = 4 at at = 2 t a deal and The party = play = y the (i) all ami Courses (a, and) (1005) (2001) hy artaba = T. aut 12 by artaba = 2. 0522 | by house areas 104 0.00 TH = 3. 8513 3 the 0.0011 = 7.5539 5 togd.001= 2.505 0 421.001 = 2×49.81 / 200 Den, = 213926 TONEX = TENISS my X = 3. 4590 = 2. 4591 Count & 100. XX = 0.02893 St = 2. 298 x10" 1000 I as The haterall father during the encuenting mention hequining we "Toristat. The state of 198 + 5 + 112 + 10. Buttick is the sume of the for the in the f=r , d -1 = ta , 200 ; dt = 1 is the most of same Bee will all the truth the first at a

2 1 3 8

 $II(b) \quad \text{Suppose that the G.P. is a, ar, ar, ... Then <math>N_{p} = \frac{a(r^{5}-1)}{r^{-1}} \quad \text{and}$ the sizeth time = ar^{5}. The sum of the terms from the sixth to the tenth inclusive = $\frac{ar^{5}(r^{5}-1)}{r^{-1}}$ $\therefore \quad S_{p} = S_{p}^{2} + \frac{ar^{5}(r^{5}-1)}{r^{-1}} \quad \text{or} \quad S_{p}^{2} = \frac{a(r^{5}-1)}{r^{-1}} + \frac{ar^{5}(r^{5}-1)}{r^{-1}}$ But 1023 $s = 31 s_0^{\prime}$ or $1023 \left[\frac{a(r^{5}-1)}{r-1} \right] = 31 \left[\frac{a(r^{5}-1)}{r-1} + \frac{ar^{5}(r^{5}-1)}{r-1} \right]$ or $1023\left[\frac{\alpha(r_{f_{1}})}{r-1}\right] = 31\left[\frac{\alpha(r_{f_{1}})}{r-1}\right]\left[1+r_{f_{1}}\right] + 1023 = 31(1+r_{f_{1}}) m$ $1 + h^5 = \frac{1023}{31}$ or $1 + h^5 = 33$ or $h^5 = 32$ or $h^5 = 2^5$ is r = 2 Ans.

Suppose that the Q.R is Q, at a very the then by = $Q(F_{2Q})$ the safe time = $2F^2$. The mapping the time from the side to the first interest = 2F $F_0 = F_0^2 + \frac{2F(F_{2Q})}{F_{2Q}}$ and $F_0 = \frac{2F^2}{F_{2Q}} + \frac{2F^2}{F_{2Q}} + \frac{2F}{F_{2Q}}$ 1 1033 5 2 31 40 1023 [act 0] = 31 [act -1] + an (n=1) - a -4 + 16 1023 [a (19/1)] = 3+ (a(19/1)] +++3] . . io23 = 31(1+1) ~~ 1+ F= 102 or 1+ F= 33 M F = 41 or F= 2 . 1 F= 2 . 15 0 × = x - 8× (0,0) the second 15 25



Shamash Secondary School Conditional Examination, Sept. 1964

Subject: Algebra Class: 4th Year Secondary, Scientific Section.

All questions are to be attempted.

- (a) The expression $x^2 + px + q$ reduces to zero when x equals 2 or 4. I. Find the values of x for which this expression equals 48.
 - (b) The expression $x^{4}+ax^{3}+bx^{2}+cx+12$ is factorable into (x-1), (x+1) and (x+3). Find the values of a, b, c and the other factor.

II.

- of a watch be at right angle for the second time ?
- (a) If $\log_2 (4x-4) = 2$, find the value of $\log_4 x$. III.

(b) Compute by logarithms, arranging your work neatly:

$$\sqrt[7]{\frac{(0.1062)^2 \times (0.0071)^3}{(1.005) \times (3.007)^5}}$$

- second, 80 ft during the third second, 112 ft during the fourth second and so on.
 - (b) In a Geometric progression, 1023 times the sum of the first five the common ratio.

(cont'd.p.2) ...

Date: 2/9/1964 Time: 8:00 - 11:00 a.m.

(10 marks)

(10 marks)

(a) At what time between eleven and twelve o'clock will the two hands

(10 marks)

(b) A car covers the distance between Mosul and Baghdad in five hours, travelling on the route which lies on the right bank of the river Tigris. Another car travelling at an average speed which is less by 20 kilometres than the first, covers the distance between the two cities which lies on the left bank of the Tigris and which is 50 kilometres longer, in 71/2 hours. Find the length of each course. (10 marks)

(10 marks)

(10 marks)

IV. (a) If a body falls from rest, (neglecting the friction of the air) it will fall 16 ft during the first second, 48 ft during the second

> Find the number of seconds it will take a stone to reach the bottom of a well 1936 ft. deep, if it is dropped from the top of the well.

> > (10 marks)

terms is equal to 31 times the sum of the first ten terms. Find

(10 marks)

6400 A

Sagangen Sacondery Saloo

· · ·

to and a company average

All questions are to be atrempied.

(b) The axpression x eax +bx expell is fnotoreble into (x-1), (x-1)

(a) At what time between cleven and twalve o'cleck will the two hands (advan of) - to marks)

by 20 kilometres that the first, covers the distance between the two cities which lies on the left bank of the Tigris and which is 50 kilometres longer, in 75 hours. Mind the longth of each course.

III. (a) If log2 (hx.4) = 2, find the value of log3 x. · · · · ...

.

. . .

IV. (a) If a body falls from reat, (neglecting the friction of the air) will fall 16 ft during the first second, 53 ft during the second second, 80 ft during the third second, 112 ft during the fourth

(b) In a Geometric progression, 1023 times the sum of the first five torns is equal to 31 times the aum of the first ten terms. Find

.

V. (a) Sketch the curve of the function (x^4-8x^2) for values of x from -3 to 3 choosing ½ inch as one unit on the x-axis and one tenth of an inch as one unit on the y-axis.

(b) From this curve find the values of x at which the function (x^4-8x^2) has minimum or maximum values. Find also these minimum and maximum values.

(c) Plot on the same diagram the graph of y = 3x-10 and from these two graphs find the solution of the equation $\frac{4}{x}-8x^2+10 = 3x$.

-p.2-

Conditional Emam.in Algebra for the 4th Year, Sept. 1964. (cont'd.) -----

(8 marks)

(6 marks)

(6 marks).

at training to many the

tch. the curve of the function (x"-8x2) for values of x from -5 to 3 no dont as inch as one unit on the x-axis and one tenth of an inch an

(tolgen and

(b) From this curve find the velues of x at which the function (x -8x²) has minimum or maximum and maximum

(S marks)

(ARAAAA 21

5 marshall j

10 lamb at

(and I have a g)

(110 man 110)

not considered as an exam. Shamash Secondary School Final Exams. June, 1964. Paper II

Date: 16/6/1964 Subject: Algebra Time: 8:00-10:00 a.m. Class: 4th Year (Scientific Section)

Talen total

All questions are to be attempted.

I. 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 m.p.h. greater than that of the cyclist, find the average speed of each.

II. (1) Find the values of x and y if

 $\frac{X}{2} + \frac{Y}{4} = 4 = \frac{X}{4} + \frac{Y}{2}$.

- in the form $a(x-1)^2+b(x-1)$.
- III. (i) The first, second and last terms of an arithmetic progression are x, y and z respectively.
 - of x, y and z.

b- Show that the sum of the progression is

(x+z)(y+z-2x)2(y - x)

- IV. (1) If S denotes the sum 1+2+3+....+n, and T denotes the sum $1+2+3+\ldots+(n-1)$, your answer in its lowest terms.
- 7.

0.

(20 mayles

The C. E. KR

(10 marks)

(11) Find the values of a and b so that $3x^2-4x+1$ can be expressed (1 a marks)

a- Express the number of terms of the progression in terms (5 marks)

(5 marks)

(ii) Four positive numbers are in geometric progression. The product of the first and third is 36 and the product of the second and fourth is 324. Find the numbers. (10 marles)

find in terms of n the value of S²-T². Give

(10 marks)

(11) What number must be added to each of the numbers 3,6,102 to form the first three terms of a geometric progression? Find the sum of the first six terms of this progression.

(10 marks)

(cont'd.p.2)

Algebra.

4th Year

(cont'd.)

0

V. A ball is thrown vertically upwards into the air from a point which is 20 feet above the sea. After x seconds the height y feet of the ball above the point from which it is thrown is given by y = 16x (4-x).

Draw a graph between x=0 and x=5 showing the relationship between y and x. (Take 1 in. = 1 second and 20 feet respectively). (5 marks)

From the graph, find:

(a) the maximum height above the sea reached by the ball, (5 mells) (5 martes) (b) how long the ball remains at least 30 feet above

Hi ke . har

the sea,

And a second of the second of

(solar al)

(alicent Ta)

10 Martin (C MARINES

Mart 2) (2 mail (ALLAND AL)

. .

- p.2 -

16/6/1964

(c) how many seconds elapse from the time the ball was thrown to the time the ball strikes the sea.

11 - martin A letter and a manual product of the A PARK AND AND A PARKAPPI ON THAT AND A PARKA FOR A PA n externe in an ist preserved to (2 that (2 the set is it is a if the subsected) - 2 = 10 might and z. (Thirth 1 in. = 1 acound and 20 foot reached and 2. tron the graph. that is it the n X+11 = 11 + 11 = 100 along the out (a) des dausteinen herficht bintres ente son ronalies og Beneficiel og (a) how many seconds olapso the more than the second of the time and t is extyness to be at year and an Ringellene Use Las - 24 gold and all and A sk-16 2 and g and a galle a state of 4 x = 4 and the start (10) the reder that is equirace a strigger is the approach in the former al x - 13 + bit x - 1 , the two generally be wheathand . france agaiting 32° + Holl a de 2 - 11 + 6 (2 - 1) + 6 m chanter which is the for al where is a same if a so that we do the second and acted and the set it all Down setter LAND LORD & ARE AND ARE STRAL in the case at as been then as is a low the particular a constant. mandiferra 1= Y-x is 22 M Ht Em y= 2 + (x-y) (y-3 $1 + \frac{x-1}{x-1} = x + \frac{x-1}{x-1} = 1 + \frac{x}{x-1} = x + \frac{x}{x-1} = (x + \frac{x}{x-1}) + \frac{x}{x-1} = x + \frac{x}{x-1} = \frac{x}{x-1} + \frac{x}{x-1} + \frac{x}{x-1} = \frac{x}{x-1} + \frac{x}{x-1} + \frac{x}{x-1} = \frac{x}{x-1}$ AND A CONTRACT OF A CONTRACT O

Jet x m. p. a = average speed & cyclist hi (x+18) m.p.h. = " " " " " " " " "

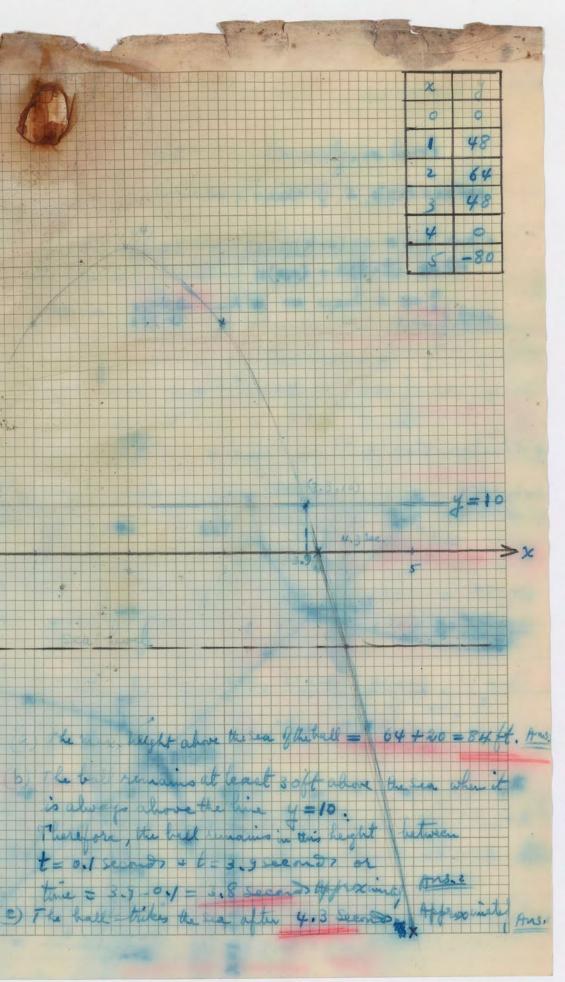
 $I : (i) = \frac{\chi}{2} + \frac{\chi}{4} = 4 = \frac{\chi}{4} + \frac{\chi}{2} \qquad :: \qquad \frac{\chi}{2} + \frac{\chi}{4} = 4 \qquad :... \qquad (i)$ ×++==+ ~~~ @

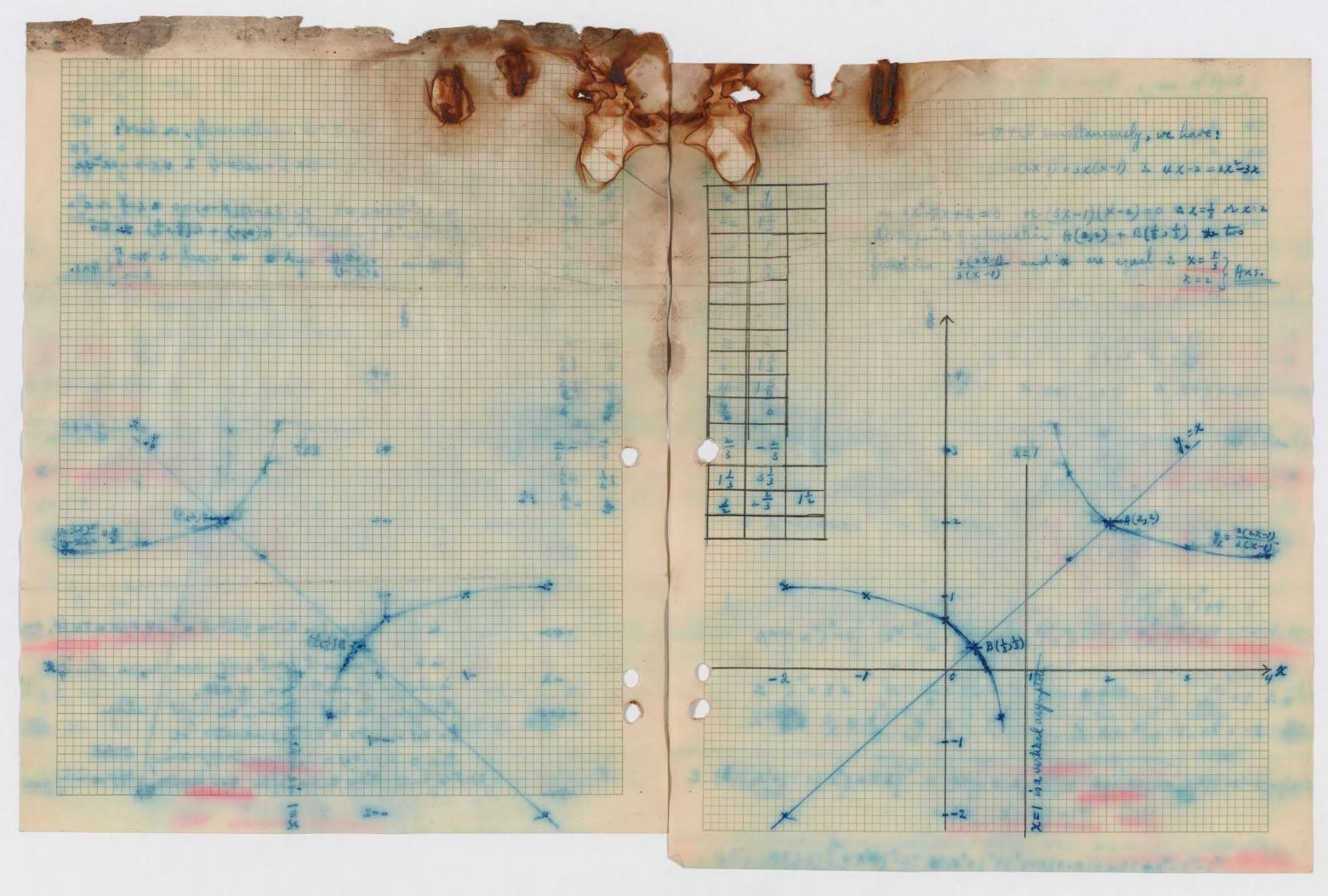
And Secondary $\frac{1}{12} + \frac{1}{12} + \frac{1}{60} + \frac{1}{60} + \frac{1}{2} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{2} + \frac{1}{5} +$ $\therefore 5 \times 44(x+18) = 5 \times 44 \times + 8 \times (x+18) \text{ or } 2 = 20 \times + 3960 = 220 \times + 8 \times + 144 \times$ or 8x+144x-3960=0 or x+18x-495=0 M (x+33)(x-15) = 0 is x = -33 (to be disearched) + x = 15 m.p.h. My = av. sp. of cyclist 1 × + 18 = 15+18 = 33 m.p.h. Ans. 5 = av. sp. g motorist : 2x + y = 16 C_a :: y + x + y = 32 - ... 37 $x + y = 16 - ... C_a$ x + y = 16 - ... 0 $x = \frac{16}{3}$ $y = \frac{16}{3}$ $y = \frac{16}{3}$ $y = \frac{16}{3}$ $y = \frac{16}{3}$ (ii) In order that the expression 3x-4x+1 be expressed in the form a(x-1) + b(x-1), the two forms should be identical. Hence the equation: 3x2-4x+1 = a(x-1)2+6(x-1) is an identity which is true for all values of x, thow lit x = 0, then 1=a(-0+6(-1) or a-b=1 Df. also let x=2, then 5=a+b or $a + b = 5 \dots 2$ $a + b = 5 \dots 2$ $a = 6 \therefore a = 3 \text{ and } b = 2 \therefore \{a = 3\} \text{ fms.}$ It. (i) (a) Let the the of terms be n. now the 1sterma=x and the comma difference d = y-x .: the with term g = x + (n-1) (y-x) $:: (21-1)(y-x) = z-x : n-1 = \frac{z-x}{y-x} : n = \frac{z-x}{y-x} + 1$ $M = \frac{g + g - 2\chi}{y - \chi} + \frac{h_{1S}}{y}$

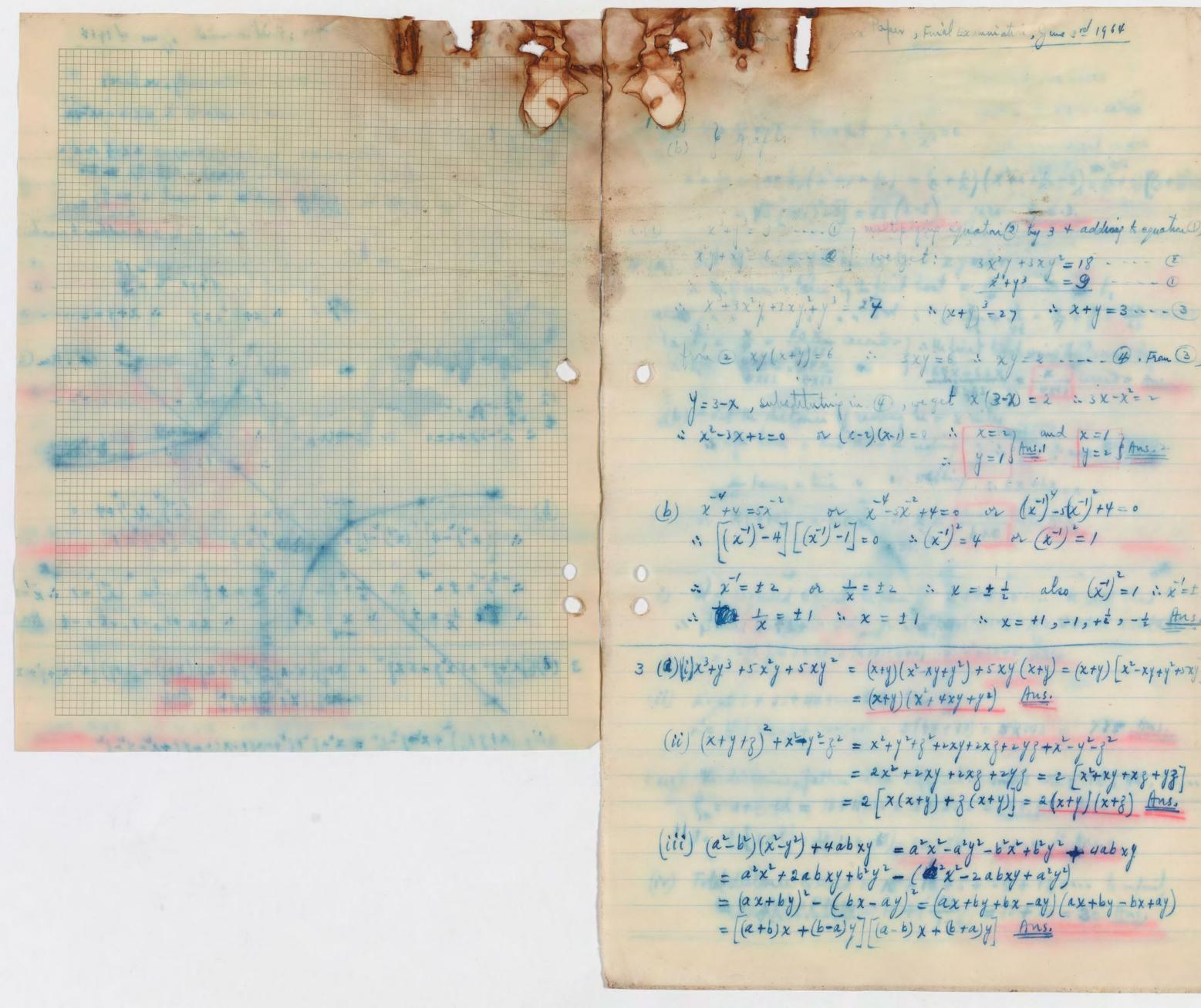
Marine Contraction 1 = = tille the property detter a long the Progression S' = = (a+ 1) = 2(y-x) [x+8] or S = (x + 8) (y + 8 - 2x) Ans. 2(y-x) (B) and \$+15) and \$ + 8x (x+10) and sate + 3960 - 24 for + 24 L (x trail (a - 1) = 2 - 12 x - 23 (the this and all + x = 15 the ph and forment interess in since as a so a construct instruct with we all a the same from a time and 日、日 そう = 年 = う + こ い ひ = 年 = サ ・ - - ① - - - ① Walk - alling and the set of the first all is I at the the the survey of the destroy and and the second and the second the se x+ = 16 ---- (Ex) x+ = 16 ---- (B) · Az de T = 2 + 11 - 1, = que la g = 10 - ex = Ja # 2 . (it) any state of a fit and a said the second to second the second to second the second to second the second to seco (iii) the mountain the represence a xt. fix +1 - be appresent in the feature Alx the b ((0 +1)) the two presence haulde to interior 6+ men aquation: 200 - 4 to so at (x - 1) + 6 (x - 1) + 6 (x - 1) + 40 an offer tits which is the a relation & i have bet i = 0, then see of the Kaling the a the state of the . the numbers are 6, 9, 2, -THE (i) (a) " I Film the the shirt the a be have the 1 th to add a hart the and the set of the the the the the and the and the and the and the set of the 1+ x- g = 1 - 1 - 1 - 1 - 1 - 1 - 1 - 2 - 2 = (x-1)(1 - 1) = N N = ATT frus.

(ii) Let the four times he a, ar, ar, ar, ar?, There: and (and) = 324 or a2r2=36 --- Of Dividing @ by 0, and (an) (and) = 324 or a2r4=324 --- @) we get $r^2 = \frac{324}{36} = 9 \quad i r^2 = 9 \quad i r = 3 \quad (the negative root is the even$ from @ a2n2=36 : 9 a2=36 : a=4 : a =2. Thereforethe ofour positive numbers are: 2, 6, 18, 54 Ans. $\overline{U}(i) \quad S = 1 + 2 + 3 + \dots + n \qquad : S = \frac{n}{2}(1+n) = \frac{n(n+1)}{2}$ $T = 1 + 2 + 3 + \dots + (n-1) \qquad : T = \frac{n-1}{2} \left[1 + (n-1) \right] = \frac{n(n-1)}{2}$ $hut S'-T = (S+T)(S-T) = \left[\frac{n(n+1)}{2} + \frac{n(n-1)}{2}\right] \left[\frac{n(n+1)}{2} - \frac{n(n-1)}{2}\right]$ $S^{2} - T^{2} = \frac{n^{2} + n + n^{2} - n}{2} \times \frac{n^{2} + n - n^{2} + n}{2} = n^{2} \times n = n^{3} \frac{Ans}{2}$ (ii) 3, 6, 10 2 Let & be the number to be added to each of the three numbers to make a G. P. out of thim. Then the three to are $(3+\chi)$, $(6+\chi)$, $(2+\chi)$. Hence $r = \frac{21}{6+\chi} = \frac{6+\chi}{3+\chi}$ multiplying across, we get: (6+x) = (3+x)(2+x) or $36+12x+x^{2} = \frac{(3+x)(21+2x)}{2} or 36+12x+x^{2} = \frac{63+21x+2x^{2}}{2} or$ $72 + 24x + 2x^2 = 63 + 27x + 2x^2$ or 3x = 9 ix = 3 Itrs. Q= Elexon x6-neif= 3(12+ 15) = 3419 - 12 = 525 Arg $S_{6} = \frac{a(r^{n}-1)}{r-1} = \frac{6[(\frac{3}{2})^{6}-1]}{\frac{3}{2}-1} = \frac{6[\frac{729}{64}-1]}{\frac{1}{2}} = 12[\frac{665}{64}] = \frac{1995}{16} = \frac{1}{16}$ Mu To - to a to the balanta y mill a me about a in la coupy - (ex- 1) a larry + 2 - 24 year of - 12+2 + cetaix +ized . it bx + it the

left the four the te dis the store save . There is aller at at the standy and a de- charles ma = 324 = 3 · 1. + = 3 · 1 + = 3 (the sugative ratio the seels form & arress i saals is any is a = . Thenfore - time prostile vanhans one: 2 , 6, 18, 54 these tem (1-1) = [0-1)+1] 11 = 7 - (1-1) + in + 2+3+1 = T ((-w) + (+w) + T(-w) + ((+w) + - (T-t)(T+b) = T-2= t.) 3 , 6 , 10 5 - if the the million to be added to added to (ii) the three rundings to worke a fair for and of this of Them to three miltipling according to gat a le the for a fight him 36772x+x2= (3+x)(31+2x) or 36+11x+x= 63 411x+2x TETBYX + AKE 63+27X+3/X de 3X=3 4X=3 1100 the thereas are been by 3, 300 a stranger and a stranger to water a farmer and the of the in a bour a bour a son the state of a bour and and the a sex + Labry + of the Lar son + a the party the state of the state of the state







aper, Final Exemitation, June 3rd 1964 x 11 + x 1 6 6 6 1 weget: 3x21 + 3x92 = 18 - ... E x + y 3 = 9 - ... C × +3x2 +3xy + y3 = 27 ~ (x+y)3=27 ~ x+y=3 ~~~(3) fini @ xy(x+y)=6 : 3xy=6 i xy=2 (D. From (3), $x^{2}-3x+2=0$ or (x-2)(x-1)=0 is x=2 and x=1is y=1 Ans. 1 y=2 Ans. 2 is y=1 Ans. 1 y=2 Ans. 2 $\therefore x'=t^{2} \quad or \quad \frac{1}{x}=t^{2} \quad \therefore \quad x=t^{2} \quad also \quad (x')=1 \quad \therefore \quad x'=t^{2}$ $\therefore \quad \frac{1}{x}=t^{2} \quad \therefore \quad x=t^{2} \quad \therefore \quad x=t^{2} \quad x=t^{2}, \quad x=t$ $= 2x^{2} + 2xy + 2xg + 2yg = 2 [x^{2} + xy + xg + yg]$ = 2 [x(x+y) + g(x+y)] = 2(x+y)(x+g) <u>Ans</u>. $= (ax+by)^{2} - (bx-ay)^{2} = (ax+by+bx-ay)(ax+by-bx+ay)$

after all as marine a free and 19 60 2 5) x+ = 13 Prove that x3+ 1/23=0 and the transfer the total $\chi^{2} + \frac{1}{\chi^{2}} = (\chi + \frac{1}{\chi})(\chi^{2} - \chi + \frac{1}{\chi^{2}}) = (\chi + \frac{1}{\chi})(\chi^{2} + 2 + \frac{1}{\chi^{2}} - 3) = (\chi + \frac{1}{\chi})(\chi^{2} + \frac{1}{\chi^{2}})$ = 1 [(13) -3] = 43 (3-2) = 2010 - 900 - 10 - 10 = $\sqrt{3} \left[(\sqrt{3})^2 - 3 \right] = \sqrt{3} \left(3 - 3 \right) = 2010 \quad Q.E.J.$ 4 (a) Let the length of the course he = x yards . no. of seconds taken by the first boat = 2 second = t, H (a) Sitt the tart of the first of the start = 18 - 0 All and a second of a laboration of the line of the li $t_1 = \frac{\chi}{4} = \frac{63 \times \text{second}}{4 \times 63} \text{ it first boat wins the race by}$ $t_2 = \frac{4 \times 16 \times -64 \times 17}{4 \times 63} \text{ if } \frac{64 \times -63 \times -63 \times -4}{4 \times 63} = \frac{\chi}{4 \times 63} \text{ Lecond} \xrightarrow{\text{Aus.}}$ & hours = time " " valking : Cx + bx = a at here a this a a calling ? (b) x + x = {(x) - 4] [(x) - 1] = 0 + (x) + 4 = 0 + (x) - 4(-) + (x) - (x or x (b+c) = a.b.c : x = a.b.c mile Ans. which the the set of the state of the liter of the state $S = \frac{n+1}{2} \left\{ 4 + 2n \right\} = (n+1)(n+2) = n^2 + 3n+2 \frac{n}{2}$ (ii) s'= 22 + 33 + 44 + in to ten terms $S = \frac{10}{2} \{ 2 \times 22 + (10 - 1) \times 11 \} = 5(44 + 99) = 5 \times 143 = 715 Ans.$ (iii) the distances fallen in the different seconds are: 16, 48, 80, ... $f_2 = a + (n-1)d = 16 + 11 \times 32 = 16 + 352 = 368$ ft. Ans. 1 100 the second at a set of the start of the and family and family and the second at th -= 1+ -11 = 10 +12 (x + x) \$ 8 (x + x) = 2(x + f) (x + 2) former $\beta = \frac{12}{2} \left\{ a + l \right\} = \frac{12}{2} \left(16 + 368 \right) = 6 \times 384 = 2304 \text{ ft. Ans. 2}$ (iv) Total distance covered = $10^{-} + 10 + 5 + 22 + 12 + ... to infinit$ = 10+10+10+(10) = 10+20 = 30 fms.

 $\sqrt[5]{(1.005)^3 \times (0.0004007)^5} (0.06109)^{10} \times (10.71)^{10}}$ X=1 いうたって (お あのかでもり たう) 一 (いわた) (水 報 時にある) - (水子) ((いち)) log 1.005 = 0.0021/13 log 1.005 == 0. 9063 2690.06109 3.571 lug 0.0004001 = 4.6029 / 5 lug 0.0004007 = 17.0145 \$ tog 10.71 = 0.3433 $\frac{\log 0.06109}{\log 0.06109} = \overline{2.7859} / \log Nume = \overline{17.0208} \log Den. = \overline{3.9151} \log Den. = \overline$ 4 (a) fibrille trafit gat Europe to a 2 gail 19 roa ve later 3.115 abore the total to the first that = 2 seals to along seems tolus to the first total = 2 seals to along to the total total total = 2 seals to along to the total total total = 2 seals total total to a total 5 togx = 15.1057 $bg x = \frac{5.02114}{x = 1.050 \times 10^3} = \frac{0.001050}{0.001050}$ $f_{1} = \frac{\chi}{4} = \frac{63 \times 2000}{4 \times 63} + \frac{63 \times 2000}{60 \times 10} + \frac{1}{10} +$ the series and the series and the series of (b) " lifette tillen of ridory to 20 Brather , and of (b) by 2= 0.30103 , by 3 = 0.47712 , by 648 = ? log 648 = log 2 × 3 = log 2 + log 3 = 3 log 2 + 4 log 3 = $= 4+3\left(\frac{\log 2}{\log 3}\right) = 4+3\times\frac{0.30103}{0.47712} = 4+\frac{90309}{47712}$ or XEbrest " book" in the land is hill that = 400 0 Rando 18 294. 2 = 40 Kur 8. 3 - 498 18 A 494 - 2. 19 2 3 1 4 2 1 - 2 = 4 + 1. 892794 = 5. 892794 = 5.89279 Correct & five dec - i) It is required to find the bar of 2+4+6+ to large true " as places of the for golf on alt an (not-1) (2) = Waran radial - 12 1 (+++++ = (+++)(+++) = 1++++] 1++ = 2 (ii) S'= 22 + 33 + 44 + + 5 the toma N= 10 = x = 2 + (10-1) × 11 = 5 (\$9 + \$5) = 5 × 143 = 780 Mus. 3 lug 2 ; 3 = 0.30103 = 4 80.47712 = 1.90848 (ici) the destance of allen in the different seconds one; HE & Ro, 80, ... log 648 = log 648 = 2.81157 = 5,892794 = 5.89279 Comet bode 2 648== a+ (n-4) == 16+ 1923 7 76 + 30 51 + 31 + 308 + to 900 11 - at 65 40 (iv) Total distance covered = 10 + 10 + 50 + 5 + 15 + 15 + 1 + 1 + 10 = 1000 (ALANT = 10 + (10) = 10 + 20 = 20 Bms.

Shamash Secondary School Final Exams. June, 1964. Subject: Algebra Date: 3/6/1964 Class: 4th Secondary (Scientific Section) Time: 8:00-10:45 a.m. (1.005) * (0.00t 4007) (0.06103) # (10.71) 1. (a) Draw the graph of $Y = \frac{2(2X-1)}{3(X-1)}$ for values of X from X=-2 to X =4, - 0.00 St 1 3 4 1 005 and 6, 00 63 12000000000000 of an inch to represent one unit on the Y-axis. - low 0.000000 - 17 .01 95 1460291 \$ tal 10,77 = 0,343 (b) Plot another graph on the same axes to find a value of X for which $\frac{2(2X-1)}{3(X-1)} = X$ and verify the result by solving this equation 80 20% 3,915 Beer = 1-03.98 algebraically. (a) Solve simultaneously: 2. $x^{3} \cdot x^{3} = 9$ 0201003 $x^2y+xy^2=6$ (b) Find all values of X which satisfy the equation: -2 X + 4 = X 10-93 m 0,4771 25 0.3 (a) Find the factors of: 3. $i - x^3 + y^3 + 5x^2y + 5xy^2$ ii- $(X+Y+Z) + X^2-Y^2-Z^2$ 51 (14.0 iii- $(a^2-b^2)(x^2-x^2)$ + 4abxy (b) If $X + \frac{1}{X} = \sqrt{3}$, prove that $X^3 + \frac{1}{\sqrt{3}} = 0$ 5.892794 = 5.89279(a) One boat in a race was rowed over the course at an average pace many seconds ? (b) A person has 'a' hours free. How far can he ride at 'b' miles an hour so that walking back at 'c' miles an hour he may reach home = 20102.0 × in time ? 24114,1024 - 84200 (cont'd.p.2)

choosing one inch to represent one unit on the X-axis and 9 tenths (8 marks)

(8 marks)

(8 marks)

(8 marks)

(4	marks)
(4	marks)
(4	marks)
(8	marks)

of 4 yards a second; the other moved over the first half of the course at the rate of 31/2 yards a second, and over the last half at the rate of 4% yards a second. Which of them won and by how

(8 marks)

(8 marks)

4th Second. Algebra.

(cont'd.)

0

0

8****

- 5. (i) What is the sum of the first (n+1) even numbers ?
 - are divisible by 11 ?

 - through which the ball would pass ?
- work neatly:

 $\frac{(1.005)^3 \mathbf{x} (0.0004007)^5}{(0.06109)^2 \mathbf{x} (10.71)^5}$

- having given:
 - 10

- p. 2-

3/6/1964

.

(4 marks)

(ii) What is the sum of the first ten numbers beginning with 22 that

(4 marks)

(iii)A body falling freely falls approximately 16 ft., in the first second, and in each succeeding second 32 ft. more than in the second immediately preceding. If a stone dropped from a stationary balloon reaches the ground in 12 seconds, how far does it fall in the last second ? How high is the balloon ? (4 marks)

(iv) If it were possible for a rubber ball to fall 10 ft., and bound back 5 ft., then to fall 5 ft., and bound back 2% ft., and to continue this forever, what is the limit of the total distance

(4 marks)

6. (a) Compute by logarithms the value of the following, arranging your

(8 marks)

(b) Find, correct to five decimal places, the value of log 648,

 $\log 2 = 0.30103$ and $\log 3 = 0.47712$ 10

(8 marks)

Subject: Algebra Class: 4th Year Secondary

5. (1) What is the sta of the first (get) aven manhana ?

Attempt all questions:

received the grant of £a ?

1.

2.

3.

5.

C

- Solve each of the following equations:-
- (i) $(x^{2}+2)^{2}+198 = 29(x^{2}+2)$ (ii) $X^{3}+7X^{2}+7X-15=0$
- $x^{2}+4y^{2}+80 = 15x+30y$ XY = 6
- 4. watch at right angles for the second time.
 - Find the value of $x^4 47x^2y^2 + y^4$ in terms of p and q when X+Y = p and X-Y = q.

Shamash Secondary School 3rd Quarter Examination, March 1964

> Date: 26/3/1964 Time: 10:15-11.45

An education Committee spent £P in one year awarding n scholarships at Secondary schools. The school fees of the scholars, amounting to £F, were paid in each case; and in addition some of the scholars received a grant of £a and the remainder a grant of £b. How many

(20 marks)

(10 marks) (10 marks)

Solve the two simultaneous equations:-

(20 marks)

At what time between ten and eleven O'clock are the hands of a

(20 marks)

(20 marks)

tary acheols. The school fous of the scholars, acounts for prid in outs cape: and in addition tone of the sol a grant of fa and the remainder a grant of fb. Now an

10

0

Shamash Secondary School Conditional Exa mination, Sept.63

Date: 12/9/1963 Subject: Algebra Class: 4th Year Secondary Time: 8.30-11.00 a.m.

Attempt all questions:

- 1.
 - Find the values of A & B.
 - factor.

Solve for X the following equations, rejecting all extraneous 2. roots:

(i) $\frac{1}{1-x} + \frac{1}{\sqrt{x}+1} + \frac{1}{\sqrt{x}-1} = 0$ (ii) $(X-7)^{\frac{1}{2}} = \sqrt{X-7}$ (iii) 3X = 10X + 3 = 0

(i) Solve for X, using tables if necessary: 3. x = x+220 = 2

(ii) Compute by logarithms:

(0.0012)² (1.003) 5 7515 X 2.004

- 4. faster. At what rate did he travel ?
- 5.

(i) The equation $\frac{7X + 2}{X^2} = \frac{A}{X-2} + \frac{B}{X+2}$ is true for all values of X. (8 marks)

(ii) The expression $X^3 + pX^2 + qX + 6$ is factorable into (X-1) and (X+2). Find the values of p and q and find the third

(8 marks)

(6 marks) (6 marks)

(6 marks)

(8 marks)

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

(16 marks)

(i) Find by series the value of the recurring fraction 0.3205 (8 marks)

(ii) The three digits of a number are in arithmetical progression. The number itself divided by the sum of the digits is 48. The number formed by the same digits in reverse order is 396 less than the original number. What is the number ?

(8 marks)

Shamaah Secondary Sol Matters Exa ministan

Subjact: Algebra Class, 4th Year Scoulary Hade: 8.20-11.00 a.m. Attempt all q uedtions:

- (1) The equation $\frac{7X+2}{X+2} = \frac{\Lambda}{X+2} + \frac{2}{X+2}$ is true for all values of X.
- Pind the values of A to B. (8 mariles)
 - (11) The expression X^{5} + pX^{2} + qX + 6 is fretorable into (X-1) and (X+2). Find the values of p and q and find the third factor.

Solve for X the following equations, rejecting all extraneous

- $C = \frac{1}{1 X} + \frac{1}{1 X} + \frac{1}{1 X} = C$ (1) . (astran 3)
 - $(41) (x-7)^{\frac{1}{2}} = \sqrt{x-7}$

(111) 3X = 10X + 3 = 0(salaram 8) .

S. (1) Solve for X, using tables if measurg: $x = x^{+2}$ g0 = g

(11) Compute by logarithms: 5 (0.0018) X (1.003)

7515 X 8.004

A man travels 108 sdles, and finds that he could have made the fournay in 48 hours less, had he travelled 2 miles an hour faster. At what rate did he travel? · .

(1) Find by series the value of the recurring fraction 0.3205 . 8

(11) The three digits of a number are in art thm tical progression. The number itself divided by the sum of the digits is 48. The number formed by the same digits in reverse order is 586 less than the original number. What is the number ? (aptresen 6)

Shamash Secondary School Cond.Exam. September, 1963.

1

Algebra 4th Year Secondary.

- 6. equations:
 - (i) $\frac{1}{2}X^3 \frac{7}{2}X 3 = 0$
 - (ii) $\frac{1}{2}X^{3} + \frac{3}{2}X 2 \neq 0$

Q

0

0

which $\frac{1}{2}X^3$ is greater than $\frac{7}{2}X + 3$.

- p.2 -

12/9/63

Draw the graph of $Y = \frac{1}{2}X^3$ for values of X between -3 and 4 taking $\frac{1}{2}$ inch to represent one unit on the X-axis and two tenths of an inch to represent one unit on the Y-axis. By drawing other graphs on the same figure, solve the

(6 marks)

(6 marks)

(iii) From the graph find the range of values of X for

(6 marks).

Shamash Secondary School Conditional Exa mination, Sept.63 Date: 12/9/1963 Subject: Algebra. Time: 8.30-11.00 a.m. Class: 4th Year Secondary Attempt all questions: (i) The equation $\frac{7X + 2}{X^2 - 4} = \frac{A}{X-2} + \frac{B}{X+2}$ is true for all values of X. 1. (8 marks) Find the values of A & B. (ii) The expression $X^3 + pX^2 + qX + 6$ is factorable into (X-1) and (X+2). Find the values of p and q and find the third factor. (8 marks) Solve for X the following equations, rejecting all extraneous 2. roots: (i) $\frac{1}{1-x} + \frac{1}{\sqrt{x}+1} + \frac{1}{\sqrt{x}-1} = 0$ (6 marks) (ii) $(X-7)^{\frac{1}{3}} = \sqrt{X-7}$ (6 marks) (iii) 3X - 10X + 3 = 0(6 marks)

(i) Solve for X, using tables if necessary: 3. x x+220 = 2

(ii) Compute by logarithms:

(0.0012)² (1.003)³

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 ?

(i) Find by series the value of the recurring fraction 0.3205 5. (8 marks)

the second second

Draw the graph of $Y = \frac{1}{2}X^3$ for values of X between =3 and 4 toking g inch to represent one unit on the X-axis and two founds of an inch to represent one unit on the Y-axis. By drawing other graphs on the same figure, solve the

......

 $(3) \frac{3}{2}x^{2} = \frac{2}{2}x = 3 = 0$

, vanbrobel mer

0

0

4.

(111) From the graph find the range of values of X for which HX⁵ 15 greater than X + 5;

Sec. in

(B MERMA)

(8 marks)

(16 marks)

(ii) The three digits of a number are in arithmetical progression. The number itself divided by the sum of the digits is 48. The number formed by the same digits in reverse order is 396 less than the original number. What is the number ?

(8 marks)

secondary School Schject: Algebra Class: 4th Year Secondary Algebra H.mo: 2.30-11,00 a.m. 100 000 .1 .. is true for all values of X. (1) The equation . 1 E F.W. Find the values of A & B. 6. (41) The expression X^3 + pX^3 + qX + 6 is factorable into (X-1) and (X+2). Find the values of p and q and find the third equations: Solve for X the following equations, rejecting all extraneous 0 VX -1 I+ XV (11) (X-7)

(111) 3X - 10X + 3 = 0

(1) Solve for X, using bables if necessary: 34 x = 2 8 = .02

A man travels 108 miles, and finds that he could have made the journey in 48 hours less, had he travelled 2 miles an hour faster. At what rate did he travel ?

(1) Find by series the value of the recurring fraction 0.5005 ... G

(11) The three digits of a number are in and thmetical progression. The number itself divided by the sum of the digits in 68. The number formed by the same digits in reverse order is 306 less than the original number. What is the number ?

Shamash Secondary School Cond.Exam. September, 1963.

4th Year Secondary.

Draw the graph of $Y = \frac{1}{2}X^3$ for values of X between -3 and 4 taking $\frac{1}{2}$ inch to represent one unit on the X-axis and two tenths of an inch to represent one unit on the Y-axis. By drawing other graphs on the same figure, solve the

(i) $\frac{1}{2}X^3 - \frac{7}{2}X - 3 = 0$

(ii) $\frac{1}{2}X^{3} + \frac{3}{2}X - 2 \neq 0$

 $\mathcal{R}_{22} = \mathbb{E} \left[\mathcal{R}^{2} \mathcal{L}_{22}^{2} \mathbb{E}_{1-2} \right]^{2}$

0

.

(iii) From the graph find the range of values of X for which $\frac{1}{2}X^3$ is greater than $\frac{7}{2}X + 3$.

- p.2 -

12/9/63

(6 marks)

(6 marks)

(6 marks).

Shamash Secondary School Cond. Exem. September, 1983.

- 9.6 4.

Subject: Algebra Class: 4th Year Secondary

Attempt all questions.

(a) Resolve into three factors: $2X^3 - 9X^2 + 7X + 6$. (10 marks) 1. (b) Resolve into four factors: $4(Xy + mn)^2 - (X^2 + y^2 - m^2 - n^2)^2$. (10 marks)

 $(3 - \sqrt{2}) (7 + 4\sqrt{3}) \stackrel{.}{\rightarrow} (2\sqrt{3} - 3),$

mationalising the denominator first. (10 marks)

(b) Solve for X :

 $\frac{2\sqrt{x} - 1}{2\sqrt{x} + \frac{4}{3}} = \frac{\sqrt{x} - 2}{\sqrt{x} - \frac{4}{3}}$

(a) Solve for X without using the tables: $(\sqrt{3}\sqrt{2})^{\mathrm{X}} = 36$

(b) Compute by logarithms, arranging your work neatly:

.0002003

Draw the graph of $X = \frac{3}{2}X^{2}$ for values of X batween -3 and 4 taking § inch to represent one unit on the X-axis and two tenths of an inch to represent one unit on the Y-axis. By drawing other graphs on the same figure, solve the

(1) M = X = 0

Take Secondary.

.0 ..

0

C

0

0 3.

(111) From the graph find the range of values of X for which \$X² is greater than \$X + 3.

. (siren 3)

Shamash Secondary School Final Exams. June, 1963.

Date: 9/6/1963 Time: 8:00-10.30 a.m.

2. (a) Given $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{6} = 2.440$; Find to two places of decimals the value of:

(10 marks)

(10 marks)

$$\frac{2}{3}$$
 $(0.04031)^{5}$ X 9.006

(10 marks)

(cont'd.p.2)

Final Exam. June, 1963 (cont'd.) - p. 2 -9/6/63 4th Secondary.

Algebra

0

5.

4.

and a state of a second

(a) Show that the sum of n terms of the series $1 + \frac{1}{3} + \frac{1}{9} + \dots$ is $1.5 - \frac{1}{2X3^{n-1}}$

How many terms of this series must be taken to make the sum equal to $(\frac{3}{2} - \frac{1}{13122})$? (10 marks)

equal to the first term.

Pinal Exam. June, 1965 (control.) Plot the graph of the function $X^2 - 6X + 5$ for values of X from -1 to 7 choosing $\frac{1}{2}$ inch as one unit on the axis of X, and three tenths of an inch as one unit on the axis of y. From your graph, find:

- (a) the least value of the function.
- (b) the roots of the equation $X^2 + 5 = 6X$
- $x^2 6X + 5 = X 1$ sum equal to ()
- (5) The first, second and frame the same of an Additional transmission duranted from Direct purcessive terms of a Geometrical progression. Show that, if the correct difference to not zero, it is equal to the first torm.
- Plot the graph of the function X2 CX + 5 for values of a from +1 to 7 choosing } iner as one unit of the axis of A,

Tlags: 4th Vear Secondary

ate: 9/0/1.965 406 06.05-00;8 ton P

(a) Resolve into three factors; $2X = 9X^2 + 7X + 6$. (10 marks) (b) Resolve into four factors: $4(Xy + mn)^2 - (X^2 + y^2 - m^2 + n^2)^2$.

0 V5 = 1.732, V6 = 2.440, (a) Given VS. # 1.414, Wind to two places of decimals the value of: (5 - $\sqrt{2}$) (7 + 4 $\sqrt{3}$) \rightarrow (2 $\sqrt{3}$ - 3). rationalising the denominator first. 1 m rate ast

(b) Solve for X

e the second of the (a) Solve for

(b) Compute by logarithms, errenging your work heatly:

(8.g.bidnos)

(b) The first, second and fourth terms of an Arithmetical progression themselves form three successive terms of a Geometrical progression. Show that, if the common difference is not zero, it is (10 marks).

(c) by drawing another graph on the same figure, find the values of X between which the given function is less than (X-1).

(d) find from the resulting figure the roots of the equation

(20 marks)

(10 maria).

(computer,) . . .

1. Jaw Sinday, Shamash School had been all , when the yes the 2x-3x+7x+6 by that when x=2, then The second second is the second which we are a three with 2x = 9x + 7x + 6 = 2x2 - 3x2 + 7x2 + 6 = 1636+14 + 6 = 0 : (x2) is a f the actual as a start of the actual and a start and the start as a start was the = 2x³-9x²+7x+6=2×2(x-2)-5x(x-2)-3(x-2)=(x-2)(2x²-5x-3) : 2x - 3x +7x+6= (x-2) (2x+1) (x-3) - Ans. . The stand the (b) 4(xy+mn) - (x+y+-n+-n) = [2(xy+nn)+(x+y-n+n)][2(xy+mn)-(x+y+-n+-n)] (and it sold war and a fair and a = $(2xy + 2min + x^{2} + y^{2} - m^{2} - n^{2})(2xy + 2min - x^{2} + y^{2} + m^{2} + n^{2})$ Antebra thi Secondary 9/0/64 = [(x+y) - (11-m) [(m+m)-(x-y)] = (x+y+m-n) (x+y-m+m) (m+n+x-y) (m+n-x+) how we will sure tex (unalex) = file a) - (unal) - (lass) - (a) a) Show that the sum of n terms of the saries $2 (a) \sqrt{2} = 1.414, \sqrt{3} = 1.732, \sqrt{6} = 2.440, \frac{(3-\sqrt{2})(7+4\sqrt{3})}{2\sqrt{3}-3} = \frac{(3-\sqrt{2})(7+4\sqrt{3})(2\sqrt{3}+3)}{(2\sqrt{3}+3)}$ $\frac{(21+12\sqrt{2}-7\sqrt{2}-4\sqrt{6})(2\sqrt{3}+3)}{12-9} = \frac{42\sqrt{3}+72}{12\sqrt{6}} - \frac{14\sqrt{6}-24\sqrt{2}+63+36\sqrt{3}-21\sqrt{2}-1}{6}$ How many tarms of this contes many de teleon to make the 135+1853-45VE-2606 = 45+2658-1518- 45 (800 - 15) a first, second and fourth terms of an Ari thuseloal 45+26×1-732 - 15×1.414 - 26×2.400 = 45+45.032 - 26210 a Geometrical progression Abor she's if the conner difference is not zero, it is equal to the first term. (10 marks). 45+45.032 - 21. 210-21.1466 = 90.032-42.3566= 47.6754 = 47.68 concerts 2 dec. He Fist, the graph of the function X - SX + 5 for values of X (b) $\frac{2\sqrt{x}-1}{2\sqrt{x}+\frac{y}{2}} = \frac{\sqrt{x}-2}{\sqrt{x}-\frac{y}{2}}$ of $\frac{2\sqrt{x}-1}{6\sqrt{x}+y} = \frac{\sqrt{x}-2}{3\sqrt{x}-y}$. With find a computer for from -1 to 7 thousing & inch as one unit, on the sais of Merry and three tendne of an inch as one unit on the axis of y. (65x+4)(5x-2)= (25x-1)(35x-4) or 6x-85x-8=6x-115x+4 いう もいちちん こうえきかいろ 人の A _ with how least value of the function. 33 VX =12 3 JX = 4 = x= 16 Uls: (b) the roots of the squation $X^2 + 5 = 6X$ of by drawing enother craph on the same figure, find the voluce of b between entell the given function is less than (X-1). 3 (a) (IIVE) = 36 = 36 = 36 = : (2x2) = 6 or 6=6 ix=1 : X=1 . (d) find fogis the nearling figure the roots of the equation (b) Let x = (0.0002003) × (0.04.031) 1.004×9.006 logo.000 2003= 4.3016 applie to a contraction of \$ log 0. 000 2002 = 3. 53440 1 log 1.00+= 0.001 and the second second and a second (20.0403) = 2.6054 1233 a = = = 1. 16324 1099,00 6=0195 2 690.04031 4-22 B1 . 8 -091.004 = 0.0017 = 4.69764 EyDen = 0.95 100.0 m 400.0 tog Num. 125 20 - 2 = lig 3.006 = 0.9545 = 0.95 620 log Den. - 52113 = 13. 666 = 0.03 FL = 5.74144 2690.0002003= 8.6032 1200 3 - (20. 000, 200 3 7 togx = T. 391634 = T.39/6 Gut 1. 716. + Main 3 /09 0.04031 = 5. 81 62 = 0.2463 Brs.

head of barners, such and had and the (it and the stand is a stand of a stand of the st a so a de with the start - after the the start ~ S_= 1.5 - - - Aus.1 (1-x2-x4)(2-x)=(1-x)=(1-x)-(1-x)-(1-x)=(x-1)=(x-1)(2-x-2x-3) (b) #(xy+pan) - (x+p-n- 2)= [a(xy+ma) a(x+p-n-2)] [-(x+m)-(x+p-n-2)] = (xy+pan) - (x+p-n- 2)= [a(xy+ma) a(x+p-n-2)] [-(x+p+n)-(x+p-n-2)] = (xy+pan) - (x+p-n-2)(xy+p+n-2) = (x+p-n-2) = (x 2 (a) Teahing (=1)22, JEan (5, 24, 20) (b) Let the forst time of the A.P. = a , the Common diff = d - 100 the thread and and - and - and and - and a rad) it want + dra a to sand : I day and 15445.012 - 21. 270 - 21.1466 = 20.022 - 42.24 43. 5. $f(x) = x^2 - 6x + 5^2$ (a) the back value of the first in (a) at and (a) the best value of the function is (-4) at x=3 0 4+ F. II-X D= 8- X 8 = 2 Per xon x # 3 M D La Wat at a set x " & Shad the (b) (b) the roots of x + 5= 6 x are the same as the roots of x - 6x + 500 they are at A+B or X=1 and x=5 ten is a set and the set of the set (c) Draw the graph of y = x-1 it will interest the first curve at A (4,0) + C (6,5) (a) share the grant of the bir the set of grant when the the set of the set o the function x-6x+5<x-1 between 1. (concertain a sport of x interright (1) 2,3 X=1 and x=5 (d) at the founts A(1,0) + C(6,5) (d) application of the - a to (a) at 1 - and a constant le pri with car in the they saled anyour he on both curves so they satisfy the september 3= x + + + 5 both equations $y = x^2 - 6x + 5$ and y = x - 1all de = ogé x24 / lagare 053 (+ + b = y=x-1 44141. E = Human attended an that they have that he y Hence x=1 and x=6 are the = T . : 91634 = 1,2916 a boots by all bart and 1 2005 g x= 6x+5=x+1 20.1463

 $H(a) = 1 + \frac{1}{3} + \frac{1}{9} + \cdots + \frac{1}{5} + \frac{1}{1 - \frac{1}{3}} = \frac{3}{2} \left(1 - \frac{1}{3^{n}}\right) = \frac{3}{2} - \frac{1}{2 \times 3^{n-1}}$ When S = 3 - 1 2 - 13122 , then 105 - 1 = 3 - 13122 · 2×3 =13122 = 3=6561 hut 6561/3 = 3 = 3 = n - 1 = 8 : n = 9 Ans.* 1 et time = a 2nd time = a + d 4th time = a + 3d |: a + 3d = a + d a + d = a : (a + d) = a (a + 3d) or dited + d'= d'+ sad i d'= ad i d= a Ans. Q.E.D. ×-101234567 11250-3-4-30514 2(6,5) (3,-4) ***

Land and the second of the sec Aditional Examination, September 1962 Subject : Mathematics class : 4th year Second any A where the state of the state Date: 14 /3/1962 Time: 8:00 -10:30 attempt all questions: when the state for the Constitution of for an and the 1 (i) Solve the fegurations for the and y: ax+by= e ----- () ant a Establish & 3 and a try of a the group = 9 from 2 + + = 1 - - - - @ (10 marks). (ii) solve the equation 4x²-12x+3=0, giving the answer correct to two decimal places. (10 marks).
2. (i) use logarithms to calculate the value of \$\$x²+\$\$x, when \$\$x = 4.836. O. (b) Let the feet (gthe 4.R = a , the Comme differ d $\frac{1}{4x} \frac{1}{1} \frac{1}{2x} \frac{1}{1} \frac{1}$ and direct direct a direct date (li) When (1-2x+x) is multiplied by (1- kx+x) the coefficient of x2 is gero. Find the value of the (10 marks). 3. (1) Find the soft term and the sum of the first 100 terms of the arithmetical progression whose first term is 20 and whose god term is 21. (10 marks). (11) Find the first + sixth terms of a geometrical progression whose commer ratio is & when the first four terms add up to 18. 1 Concerned in Other all any next we want it (1) the set of the set of the first 4. The cost of turing a piece of lawn for a tennis court 10.6,5) at 10 shilling pu square yord is \$12 less than 12 times the cost of fencing it all round at 5 shillings per yord. If the lawn had been 12 ft. longer it would 1 4 4 = 0.92535 / (d) of the failt of (1,0) 53 \$ (6,5) -have been twige as long as it is wide. Find the Ax+20+ Dx m (Axh) x + x dimensions of the lawn in yard a (20 marks). adjao's heard Aller Henie the safficient and the one the 5. Draw the graph of 2=2x between x=-2 and x=4. TEX= 2+Xd = X D Stand I and From your graph solve approximately the equation x2-2x=1. (with the help of a fact this graph, solve approximately the equation x2-2x=x+1

intertant at land in a fixen my angen her 1962. litrial Examinition, application 1962 #thy year Seendary. Paper it i Malhamarkalt : The Date: 14 (2/1862 " axtby = e ---- 0 2 axtby = e ---- 0 the transfer of bx+ay= ab --- E lave : 4th Jean learst and Time : 8:00 -10:30 hull proper a by an specie by b, + your get b=x+ by = 1= - 3 subtracting @ frow , weget: : availary lla frittle Salue the partition for the agend y a ax+6y= e -===.0 abx+by= be- 3 subtracting I from 0, we get: a + = 1 - - - (10 marke). $y = \frac{b(a^2 - c)}{a^2 - b^2}$ (ii) solve the equation it x - 10 x + 2 = 0, gaining the amender Correct to two decimal places. (0 marked). (a2-b2)y= a2b-bc=? x = a(c-b) y = b(a - b) } Ans y = a - b - B Ans R = a(-b) - B - a(-b) -Q. 2. (i) este tagaiithmus to calculate the value of NXXX , when x = 4.836. (i) $4x^{2} - 12x + 3 = 0$: $\chi = \frac{12 \pm \sqrt{14y} - 4xyx_{3}}{2xy} = \frac{13 \pm \sqrt{16}}{8}$: $\chi = \frac{13 \pm 4\sqrt{6}}{8} = \frac{3 \pm \sqrt{6}}{2} = \frac{3 \pm \sqrt{6}}{2} = \frac{3 \pm \sqrt{6}}{2}$: $\chi_{1} = \frac{3 \pm \sqrt{6}}{2} = \frac{3 \pm \sqrt{6}}{2} = \frac{5 \cdot \sqrt{49}}{2} = 2 \cdot 72 + 5 = 2 \cdot 72$ Greetbar (ii) When (2-2× 1 2) is multiplied by (1- Roose) the configure of Xt is gave . Find the walne of the " (10 marks). 3. (1) Find the state from and the sum of the first son totune of the exiting the state from the same show find totunia so and where 9 3rd totun in al. (1) Find the first a suit totage of a gernitical fragmanic $Q = \frac{3-\sqrt{6}}{2} = \frac{3-2.449}{2} =$ 0.551 = 0.2755 = 0.28 Cm." 2.(i) x= 4.836 slit x+x = y = x(x+1) = 14.836x 5.836 strate arranger haction is of liter the first your "litran add (police 187 . (10 marles). log 4. 836 = 0. 684 Harris all a starting log 5.836 = 0.7661 4. The exact of tondained a finise of town for a terrowing count 2 log y = 1.4505 · at is stilling on square gard to the bas than hand 12 4 4 = 0.72525 squillibe a to house lo to prove of for all sint as a xry y 2= - 5.311 or 5.31 Ans. per yand. If the own hand been 12 ft. langer it would thank here an train and it is wide. Find the (ii) (1-2 x+x) (1-kx+x) = 1-1 $(k) x + 2(1+k) x^{2} - (2+k) x^{2} + x$ (udreamanined the laws in your a (se marked). in the coefficient of x is +k)=0: k=-1 Aus. . H= x but s== x mented x= # Black and x= 4. a yage or y=2 (maximulate) / a longth x= 20 yd. From your graph salar approximately the aquatur 2t- 2000 1, the and a father of the well and a strate that the server and the server as the server as

Leaft . And . this was hilled in a man Selection to Constational Exam Conto, Sept. 1962 and and 3.0) pet time a = 20 - 0 , mous a = 203.0) a = 20 - 0 , mous a = 20 $d = \frac{1}{2}$ Subtract Open 0, : 2d = 1 : $d = \frac{1}{2}$, $d = \frac{1}{2}$ 3.6) We then an 20 - all forthers and the the t = R+(4-1) d = 20+ HERE = 20+ PVE 44E Pres. 1 t= a+(n-1)d+= 20+45x = 20+24 = 442 Aus.1 $S_{100} = \frac{1}{2} \left\{ da + (n-1)d \right\} = \frac{100}{2} \left\{ 2xa0 + (100-1)x \frac{1}{2} \right\} = 50 \left(40 + 49\frac{1}{2} \right) = 50 x \frac{179}{2} = 4475 \frac{1}{2} \frac{1}$ abx+ hope be - C subtracting C from S weget Hugs Base (ii) $r = \frac{1}{2}$ q = ? $<math>S = 18\frac{3}{4}$ $f_6 = ?$ $<math>S = \frac{a(1-r^2)}{r^2}$ (2) - E)= t = 2 - be=? | 5 = 3(- - 5)- - 5-. 25= 184 - 1 26 =? | 5 = 3(- - 5)- - 5-1 8 = a (1-(1)) = 18 = a (1- th) on 25 = 2a (15) a = 75 × 16 or a = 10 Ans. 1 4×2×15 h = ar = 10(4) # 10 . Am 325. Am 20.7245 = 2.72 Const $l_1 = ar^5 = 10(t_2)^5 = \frac{10}{32} + \frac{10}{32}$ y. Let the length = x yds xyds + 1. 1. width = y yds. yds. Or let the length the = x ydass 0.551 x yde 18 gds. * hat of tenfing = ac x y shilling of the and = / 4.836x6.832 = Cost of turfing = 10 x y shillings = f(***) also but of fincing = 5 x 2 (x+y) shilling = f(x+y) also lit of formaning = 5 x 2 (x+y) shilling = for + 1) * log x + 12 = 12 x x+1 ----- 0 7 -- 6.8 have 12/t= 13- 4- 40 = 14 4 805 a X+4= 24-5,511-5 - 1-0 from (), xy+24 = 12x+12y7: (2y-4)y+24=12(2y-4)+12y fra @ 2 x = 2y - 4 = 24 = 24 - 48 + 12y $x = 2y^{2} - 40y + 72 = 0 \text{ or } y^{2} = 20y + 36 = 0 \quad (y - 2)(y - 18) = 0$ $y = 18 \text{ or } y = 2 (\text{madmissible}) \qquad (y - 18)(y - 18) = 0$ $x = 2y - 4 = 2x(8 - 4) = 32yd_{3}.$ $x = 2y - 4 = 2x(8 - 4) = 32yd_{3}.$ $y = 18yd_{6}.$ · Y= 18 on y= 2 (madiminitely)] & length x= 32 ydo]

worth the the state and the set in the Solution to Conditional Exam Cont. Sept. 1962 4th year algebra 4 the year algebra. 5. Jal=x -= x St. Aller nav ca 30 1. as = i fant f Da f(x) F(x) 3 (3.3, 4.3) + (x) = malant : de = 1 0 (0.4) = (2.4,0) -1 P(24+1)(det m) als to have be formed to be wet these to 1 (-0.3, 0.7) 0 = 20× 123 = 44422. 4425 = 8 the solution of the equation of a start a son of the solution i the solution of the equation x - 2x = 1 ques x = -0.4 of Aus. also Salistin & Depayation X-VX=X+ Equas: 15 = 2a (15) also Solution of the equation 22-2X=X+1 gives! $\chi_{1} = \frac{3+\sqrt{13}}{2} = 3.303$ $\chi_{2} = \frac{3-\sqrt{13}}{2} = -0.303$ $\chi_{2} = \frac{3-\sqrt{13}}{2} = -0.303$ ×X = 3400 3.363 9= 10 Auri x= adere = " 66303 - 10 muse anthreatical progression store first term is no and whole O' let the lengthle = x yda xyda x yda yda 0 Find the first & with Term of a geometrical progression when armin tentio is to when the first from time add (#x) = coulder y x 01 = pinker (ton 2 2 also bat of generic = 5 x 2 [x + y) shiling = f(2+4) "The cost of the fing a pine of laser for a time court at 100 shilling pin square good is \$12 this the 12 ting Bucal & Juncing it all sound at 5 Willings a Xtip = 24 -- - - - - - @ This trand . If the lass had here 12 ft. larger it would Bar+ (2-h-)=1=h=+ b(1-h=) = (h=1+x=1= h=+ hx ") = +1= h here she have a that a the the and the here and the here and or 34-404+72=0 or 42=204+36=0 -(4-4)(4-18)=0 For any fift also appressible to grating the second of the a y=18 on y=2 (madimination)] a longh x=38 phills a x=34-4 = 200-00 = 20 ptic

ine 02:01-00:8 MAG anneus llo CEAH. 5 Control 3.3. , (salaser or Viehenno it Labore the R.P. ILA R. B. BOOK 0 heales of 347 XZXF (asheard of the walker del tinent as m. pratti nallatinari 0 10 marteal. .1.0 marker John and a rug the first (salven of ware. ACREAT 123 the aquetras X- 2Xm Jan PP aproximate. interest standarder and the senter that the

Class: 4th Year Secondary Attempt all questions: 1. (1) Solve the following simultaneious equations for x and y : ax + by = c (1) $\frac{x}{a} + \frac{y}{b} = 1$ (2) correct to two decimal places. the value of $\mathbf{x}^2 + \mathbf{x}$, when $\mathbf{x} = 4.836$.

Subject: Mathematics

- of x2 is zero. Find the value of k.
- 3. term is 21.
 - to 183.
- Find the dimensions of the lawn in yards.
- 4. Draw the graph of x^2-2x between x = -2 and x=4.
 - equation $x^2 2x = x + 1$.

Shamash Secondary School Conditional Examination, Sept. 1962.

> Date: 14/9/1962 Time: 8:00-10:30

(10 marks).

(ii) Solve the equation $4x^2 - 12x + 3 = 0$, giving the answer (10 marks).

2. (i) Use logarithms to calculate by the shortest possible way, (10 marks)

(ii) When $(1-2x + x^2)$ is multiplied by $(1-kx+x^2)$ the coefficient (10 marks)

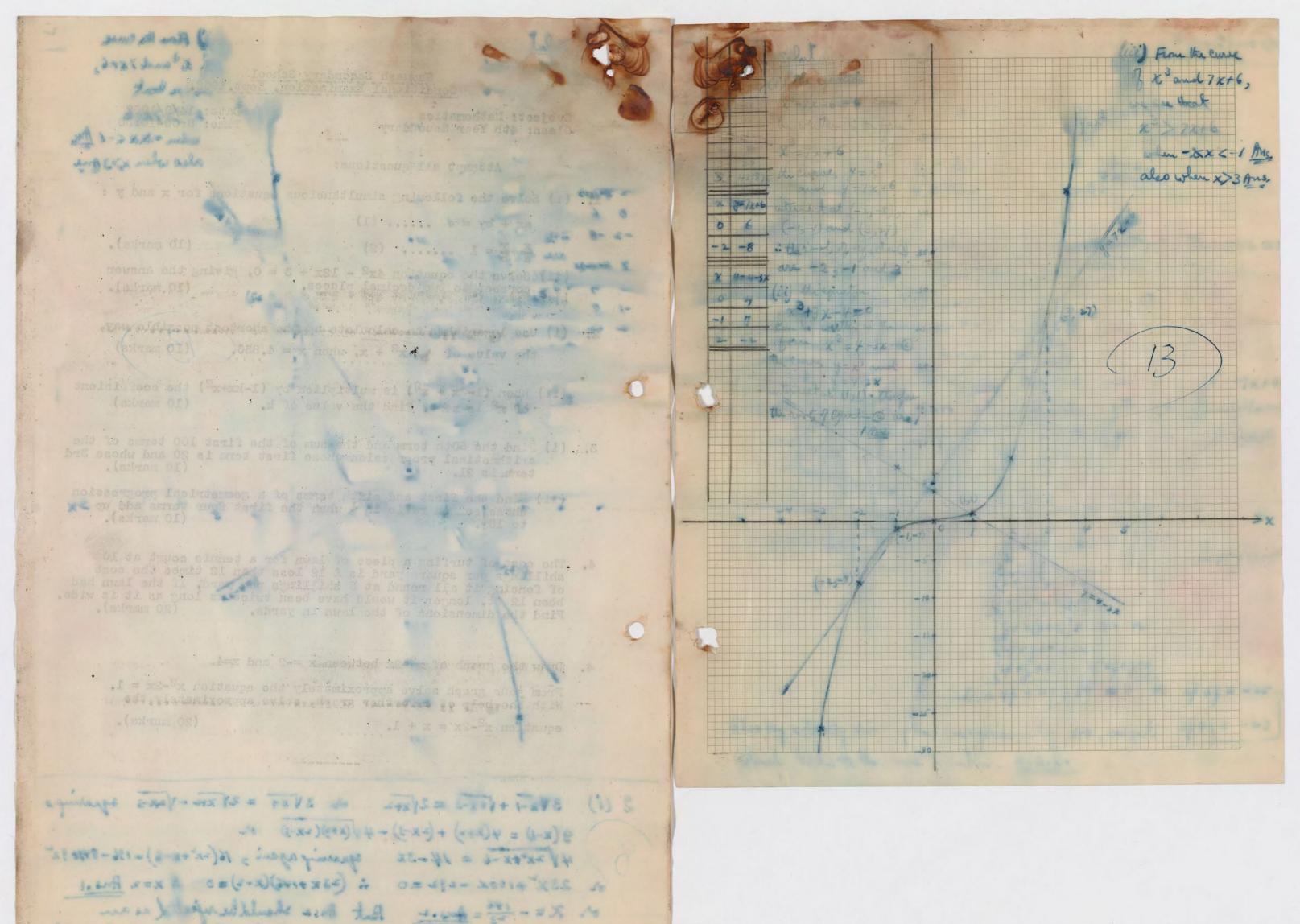
(1) Find the 50th term and the sum of the first 100 terms of the arithmetical progression whose first term is 20 and whose 3rd (10 marks).

(ii) Find the first and sixth terms of a geometrical progression whose common ratio is $\frac{1}{2}$ when the first four terms add up (10 marks).

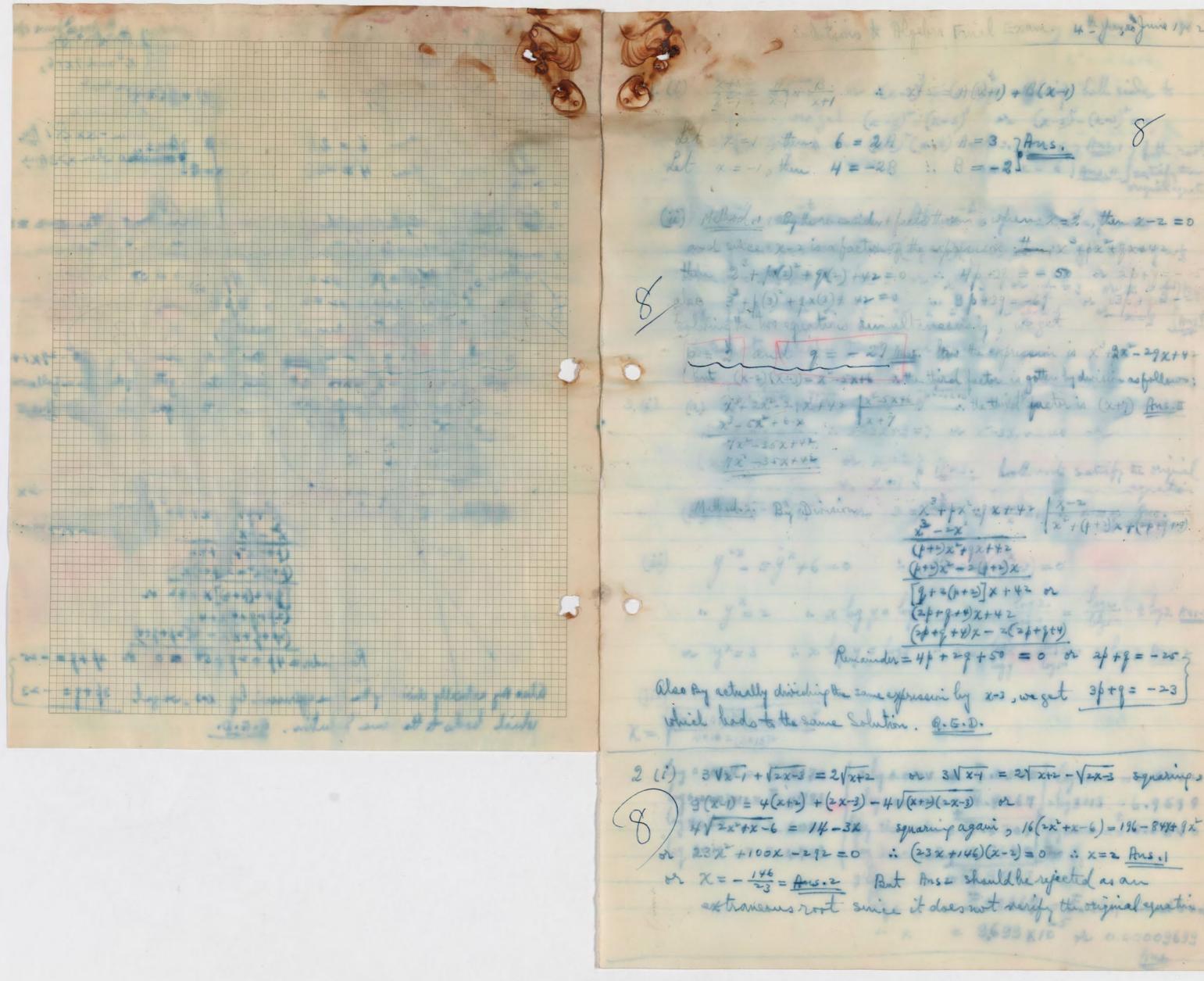
4. The cost of turfing a piece of lawn for a tennis court at 10 shillings per square yard is £ 12 less than 12 times the cost of fencing it all round at 5 shillings per yard. If the lawn had been 12 ft. longer it would have been twice as long as it is wide. (20 marks).

From your graph solve approximately the equation $x^2-2x = 1$. With the help of a further graph, solve approximately the

(20 marks).



attensand cast amiae it does not marily the reginal quatic



Endetions & Algebra Final Exam. 4 - years fine 1902 x+ x+1 + + + + + + (x+1) + B(x-1) hall when to manager (and land) and and and (ii) Mellood at rilly the remainder + feet of the owner that then x-2 = 0 and succe x=2 is a faction of the appendix the x + px + gx + 4. and q = - 27 mas. the expression is X 12x - 29x++2 but (k-2) (X-3) = X - 2x+6 attential factor is gotten by devicin asfollows: " " " " " " halt and satisfy the Methode 2 - By Division x + px + p x + 4 + 1 x + (p + 1 + 1) (p+=)x=+9x++2 [2+2(++2)]x+42 or (2p+q+4)x-2(2p+g+4) 9(x-1) = 4(x+2) + (2x-3) - 4 V(x+2)(2x-3) or 1 4 V 2x + x - 6 = 14 - 3x squaring again, 16 (2x + x - 6) = 196 - 84× 9x extraneous root since it does not verify the original quation - 3,433 K/D als 0

is of a proof agreed it to t alie what (pickalle ((e-2) - (e-2) - (e-2)) attaliating hall sinder to (i) VR-5 = VX-5 - (x-5) = (x-5) Raising hold side to the 6th person ; we get (x-s)=(x-s) or (x-s)-(x-s)=0 the bill passes are get (k - g) = (k - g) - (k - g) - (k - g) - (k - g) = p or (x-s) [(x-s)-1] = 0 or (x-s) (x-6) = 0 : x = 5 7 Ans. 1 / hoth roots + x = 6 / Ans. 11 / satisfy the original equation to and the first and a love (and) and an first and the said of the rank HE HE - 20 1 = - + & Le - + Jan - + Jan the to (iii) 3x - 10x + 3=0 - det x = y : x = y (iii) 3x +10x +2=01 lat x = y ... = the fin 2-2=2 $\begin{cases} 3^{2}y^{2} - 10y + 3 = 0 \quad \text{for } (3y - 1)(y - 3) = 0 \quad \therefore \quad y = 2 \quad +y = \frac{1}{3} \\ \text{solution } y = 3 , \text{then } 2^{\frac{1}{2}} = 3 \quad \text{or } \chi = 9 \quad \text{or } \chi = 9 \quad \text{or } \chi = \frac{1}{3} \\ \end{cases}$ topa say into legit - get water an expensive s adapt of the state where first the first on the first where goes have where y= = = = then x = = or x'= = or x = = or x = = or x = g Anus but roots satisfy the original equation Saturate satisfy the spectra and in the spectra $(a) = N^{\frac{1}{2} - 3x + 3} = \sqrt{N} \qquad (b) = N^{\frac{1}{2} - 3x + 3} = N^{\frac{1}{2} - 3} = N^{\frac{1$ (a) H and all for the state of the second of 3.60 (3) : - - = + : x=3x+9=7 or x=3x+2=0 or A save the is a sadded at the strate and a she want (x-2)(x-1)=0 or x=27 Ans. both noto satisfy the original (2+ a) (20-0) mere at 12-2 & Arris lead and satisfy the original (3) (b) 15=4== 181 or 3= 3 : + = 1 : x = 4 Ans. (b) Yer a start is a safe in a take i (ii) y - Egitte = 0 : The man Helling = 0 (ii) y'' = 5y'' + 6 = 0 : (y'' - 2)(y'' - 3) = 0a year a the we when the and the and the at of : y = 2 . x by y = by = 1: x = tog 2 = tog 2 = ± by 2 Fus. torn + the Aren or yx=3 : x log y = log : x = log = log = = tog 3 Ans. 2 in the s is so that the the table to the state of the set of the s $\chi = \frac{(2ii)}{4020 \times (3015)^2}$ (200 = 20 the tagoes, and inservice and picking planter por calles) X = Viendra Karden and and the State . 9.6.D. 2 (ing a care = E. al 7 a 2 / 2 and a aray at x4. as warding for a synamic of form log 0.0104 = 2.0170 2 log 0.0104 = 4.0340 log 4020 = 3.6042 log 0.0000 3012 = 5. 4789 3log 0.0000 3012 = 14.4367 2log 3019 = 6.9598 8 9 3 P. J = Brogen + T & B. W. materiagoon por a x - 28 8 th . The stor and por log 4020 = 3. 6042 log Numerator = 18.4707 log Denomin = 10.5640 17 to 22 +F 2. 6044 - Die Maganting 4804 804 1 10-8400 00 100 des 2013 + 70 3x 4 793 + des Binderster 1936 + 9 000 : x=2 Aus. log 3019 = 3. 4799 log Denominaling= 10. 5640 on X = - 146 press 7 top to line as Ball & aparted as an 7 log x = 5.98667 = 5. 9867 Greet to 4 06 attansmart ships it does not the spile to the parameters logx = 9.699 × 10 2 0.00009699 - x = 3,693 x10 & 0.00009639 - X

and at the X a Three a rate of Ouroge in athering buffer since to tobe there have a hatter getrates on and the generation a Collected as an (col) (col) and the collected of the most (11) 3x -10x +3=0 or 64 x = 4 = 2 = - 0 さったか ふーち ふっつっ (ひこう) (いろ) しいの いち こう ひって ない しん multiply figure at y substructs by the to the set of th integra higher organic appeting at the 26% = 16% - 22= 6 × = 0 + x = 1/2 1 = 1/2 1 and a have a state the draw of the state of or the states = + : 2=2x+3=1 or 2-3x+2=0 or a the safe of any on a till could and the safe will be a suble of the safe of (ii) for all the week stree inflation (for) = 0 (if a for all and a for I the being finate terrend . 141 the 298 in + Tongat the superfiction of the E the press then and End a - and and in and a boly of got frank and and and got is talk detines travelled toget to store in the proximal (iii) $\frac{1}{2} + 4 + 6 + \cdots$ $\frac{1}{2} = \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{$ They the frank dist i then is marter = 18.4707 / generaling 10,5640 Cox = 5.98667 = 5,9867 Correct & 406 - x = 9,699 x10 & 0.0009699

+ let the y might = rate of runing in still water 13 or 24x = 5x2-20y2 ---- 0

by has to trand 2+2=4yds. + so on. : total distance travelled to get 10 stars with hox = Toget the first n stones : $\beta = \frac{\pi}{2} \left\{ 2 \times 2 + (n-1) \times 2 \right\} = \frac{\pi}{2} \left(2 + 2n \right) = n (n+1)$

S= n-1 {2x2 + (n-2)x2} = n-1 (2n) = n (n-1) Ans. II

also $\frac{2}{x+y} + \frac{2}{x-y} = \frac{2}{3}$ or 3(x-y) + 3(x+y) = (x-y)or $6x = x^2 - y^2 - 1 - - - - - = = =$ Multiply equation (2) by 20 x subtract, have $\frac{120 \times = 20 \times^{2} - 20 y^{2} - - - - 0}{24 \times = 5 \times^{2} - 20 y^{2} - - - - 0}$ $\frac{24 \times = 5 \times^{2} - 20 y^{2} - - - - 0}{96 \times = 15 \times^{2}} : 32 = 5 \times : \times = 0 + \times = \frac{32}{5} \text{ Ans.}$ $M_{MAS} \quad y^2 = x^2 - 6x \quad 02 \quad y = \sqrt{x^2 - 6x} \quad 02 \quad y = \sqrt{\frac{1024}{5}} \quad 02 \quad y = \sqrt{\frac{1024}{$ or y = 5 V 64 or y = 5 hrs. I - 14002 (0200) & 288 + 10002 inches and the is a current = = 1.6 mills h. 3 the. I the boy has to travel 1+1= 2yos . To get the seen store in the hox, the 2+4+6+- $z = \frac{m}{2} \{2a+(n-y)d\} = \frac{10}{2} \{4+9x\}$ = 5 x22 = 110 yards. Ans. 1 Ans. I Toget the first (n-1) store:

at the first of the second burnet to the first of the second of the seco squalist (at + kit + kt - - et x = 15 x + iagy - - - - 0 multiply aquation (2) by 200 & substitute and showing and record O N=967 = 1500 : 32=52 : X=0+ X= = Aus.1 b. (i) the rate of naming in ability with = " = " = " are militif.] and the is a current I = 3 = 10 in the 5. (i) To get the funct store in the hope . The for th the boy has to be and they of . To get the same store with here we = xot all'as with as highly beller at souther later is = = x22 = 110 yerds. toget the first a strine : . 1 . 2000 Tonget the first (end) store : 120.

The side of the first square = 2 th a is a c surend square = tetz 10 4 4 4 third square = 12 V2 = K + 20 m 2 the Sam of the sides of all the squares equals=4(2k+kvE+k+ -- to infinity) . Sn == 4 [2k] sie the backette an infinitegemetrical n= 00 = 4 [1- 1- 1- programmin where is which: n= 00 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 0 in an ange for a first of the processing this 6. (i) the set with the to the set of the set of the set a Read and Breath days firs, Barley lend fra A alter a to a be a later of a series and a · Argles Marge in No - No - 1971 - Alex ant (7 and a Colling States - (The all and a fill a the a the second as the The fight of the first VE. Joi + 15t Mars 14 an aller and the The Barthe Barent have

side i was a truck the serie a a a summing with a tool has be 1=+ (2k+ka+k+ ---firster at the The Thead in 200 enter aliente in anter in aliente Lor · Mar water in the state of the building the of many the areas a freedow to have been the 44 get atta (= +30 +29 =0 +50 = 12 = 00 + 2 00+2 100-1 14 Bard = 5 Prest Hund 1 = 3, Barby Cars Mar a stay (to y) and in the arry Come 3. (1) (728) 2 (8) 2 2 4 by a Real 2125) = (21) = (2) = (2) = (2) = (2) = (2) = (2) CATE E MARS 100.0 = 15 Total hard had been

September 14, 1361 (a-1) - 9 a+ 3 = 4 a (a-1) - 2 (a-1) = (4-1)(4a-3) (2-1) (2a+3) (2a+3) . Ans. 2 . $\frac{7A - 3B}{5A + 6B} = ? given = = 11 , \frac{7A - 3B}{5H + 6B} = \frac{7B - 3}{5B + 6} = \frac{7 \times 4 - 3}{5M + 6B}$ the of apply = x+ (2x + 8) = = x-(3+8) ina parte 6 m alt is a construction of the state of the state of the $= \frac{30 \times -12 \times -5 \times}{30 \times} = \frac{13 \times}{30 \times} = \frac{13 \times}{30} = \frac{13 \times}{30} = \frac{13 \times}{30}$ 2. (i) Rx + Bx + 2=0 when x=1, stept: R+B+C+1=0 ---○ Alen x'= -1 : ve get: - - A+B-C+2=0 @r fand O + @ we get: 2B+4=0 ob B = -2 mail = = 10, 10 the tail from @ 89412B+18e+54=0 & 4A+6B+3e+27=0 ==- @ Substitute B= -2 in apr. @ A+C=0 : A= -C - Substitute in we get -40-12+90+27=0 .50=-15 :0==3 fors.11 A REECE & Ansite . Hince A=3, B==2, C=-3 Aus. a Many hand excelet Name wood $\begin{array}{c} (ii) \\ \sqrt{\frac{4y-i}{4x+i}} = \frac{y}{2x}, \quad y=2, \quad i = \frac{4y-i}{8x+i} = \frac{y}{2x}, \quad x = \frac{4xy^2 + y^2}{8x^2 + x^2} = \frac{4x^2y}{2x^2} + \frac{x^2}{8x^2} + \frac{x^2}$ == Axy(x-y)=x2+y = = A = x+y2 = Ans. 3. (1) (729) = (3) = 3=243 Ans.1 $\left(\frac{32}{3125}\right)^{5} = \left(\frac{3125}{32}\right)^{5} = \left(\frac{5^{5}}{32}\right)^{5} = \left(\frac{5^{5}}{32}\right)^{2} = \frac{125}{3} = 15\frac{5}{3} = 15.625\frac{4}{35}$ $(343)^{6} = (7^{2})^{6} = 4^{6} = 4^{6} = 4^{6}$ (ii) "Vo. 0001 = 10" Aus. 2 2 109 0.00561 = 5.49200 (iii) Let x= 10.00561)= = log 0.00561 = 3.74-90 = 1.3564 Correct b 4 dee. H. log 1.008 = 0.0033

Entrois to Addingment tenan willyelin and is after bar September 1361 S= n(a+l) = 35 = = [a+l]. aleo; l-a= 18 or l= a+18 The to (a+1) a 35 = to (a+1) along 88 of fa a+18 : 35 = Z(a+a+18) or 10 = 2a+18 or 2a = -8 1 35 a b (a tate) or som att - 2am to a a = - 4 . = l = a + 8 or 2 = 14 . Have the come hade and a an - 4 it is a for - 14 , in with the man had a set boot, l= a + (n-1)d or d= t-a 14+4 =3. Hence the Seven numbers are: harts have a + (n +) of an al = " " " I there and I have be have be have not a first -4,-1,2,5,8, 11,14 Hns, (ii) $an^3 + 6ar^4 = ar^2$ Dividing by an^2 , we get: $r + 6r^2 = 1$ or $6r^2 + r - 1 = 0$ or (3r - 1)(2r + 1) = 0 or $r = \frac{1}{3}$ and $r = -\frac{1}{2}$ (23) anote and all maintain a sur main ou frender a (se -1) (++1) as an here and X-107-22 = 192 = 19 201 - X are the and mante a -fall a canal Barriston the x=1, may have a stranger of the · Konit of the fit the for the former $S = \frac{\alpha(1-r'')}{1-r} = \frac{-32\left[1-(-t)^{6}\right]}{1+t} = \frac{-32\left[1-\frac{1}{6y}\right]}{3} = -\frac{32xz}{3}\left(\frac{63}{64}\right)$ T - T I - PART - SPECE & STORE - THE AND - I F. = - 21 Ans. 11 5. Let the time be x minutes after 7: 5. 1 little to istant a material to the son and the to x hunts They there have a would have word a strong of yours The Hour hand would have moved) 2 divisions beyond no.7 $x + 15 = 35 + \frac{x}{13}$ $x - \frac{x}{12} = 20$ 1 20 = 30 - X 3. (1) (78-3972 + 10) (1) (1) (1) (1) (1) (1) (1) 1 12x+100=240 : 4 pt = 2460 · 11x = 240 ~ x = 240 = 21 9 mouts : The time is 21 minutes past 7. Ans. : The tought a 21 the mainte papier. I are (Yerring - 10 street 1003. N. 6 - 10000 Course of a de (S in an arol = E. Then a po 24 . . . T. 5.5.64 Coursel 640 dec. 14 1-00 100 .0 = 800 A PO

ALED = -- 28 02 (= 2+18 2 4 == - - 5 10= 2418 1+18-2-29/+8 12 * Em 19431 de= to A H = -1 > 2 5 5 8 9 11 g HH + 6 an = an Dividence as a state in the me + man had the my to out (1+1) (1- 48) to out - 4+ and many a fill a draw Jam they me 16 med a to Alexander (4-1) D 18 + 12 10 = 21 9 march and and , 213 nominte point 7.

Date 1/9/1961 Subject: Algebra . Time: 8:00-10:30 Class: 4th Year Secondary Attempt all questions: (i) Factor completely: $4a^2(a-1) - 9a+9$ (6 marks) (ii) Find the numerical value of $\frac{7A-3B}{5A+6B}$, having given $\frac{A}{B} = 11$ (7 marks) (iii) A basket contains oranges, lemons and apples. The total number of A basket contains oranges, for $\frac{2X}{5}$ oranges and $\frac{X}{6}$ lemons. What fraction of the total is the number of apples? (7 marks) EX-JUNCE & EXINEXTE (i) If X =1, X=-1 and $X=\frac{2}{3}$ satisfy the equation $Ax^3+Bx^2+Cx+2=0$, (10 marks find the values of A, B and C. Ay-1 (ii) Given that // , obtain in its simplest form an expression Ax+1 (10 marks for A in terms of x and y. (i) Calculate the values of $(729)^{\frac{5}{6}}$, $(\frac{32}{3125})^{\frac{5}{5}}$ and $(343)^{\frac{5}{5}}$; $(343)^{\frac{5}{5}}$ 3. (7 mastes (6 mausica (ii) Express 0.0001 as a power of 10. (0.00561)² 1.008 (iii) Use logarithms to calculate the value of // correct (7 marks) to four decimal places. (i) The sum of seven numbers which are in arithmetic progression is 35 and the difference between the first and the seventh is 18. Find the seven numbers. 4. numbers. (ii) The sum of the fourth term and six times the fifth term of a geometric progression is equal to the third term. Find the two possible values of the common ratio. If the second term is 16 and the common ratio is negative, find m of the first six terms. (12 sum of the first six terms. Find the time between 7 and 8 o'clock when the hands of a watch are 5. (20 marks) separated by 15 minutes for the first time. 1 2 1 1 1 1 4 AV 3.20 Stine 3.2705 201 # 2.1977

Singe 65 m

115044

Shamash Secondary School Conditional Examination, September 1961

二, 你, 你 #3 》 34

14PI LITEI hillingthe juic & an given in - parents prove for a farme in south & a sig ana prace for sight provide at land inght for the in 1st care ARA & SPRE - BRANCH CORDER CORDER 2 ush case Date 1/9/1961 1980 + 19.00 48 the second in the part - prove of an family in formant on forman 1 XOL 14 027 20 (A.M.) the momental sulpa of receipt an invite fiber is a fare. 120X - 120 X - 2 1994 5K- 6X-14400 to (5X+24) (2-5)=0 4 1 + - 24 Bladie 1 to illings Has The south was the start of the start the south and the tes (mote att a a deal tribution of the a A 41/14 A 2 ad + (2+6)x+x = on x = (2+6)x=0, m, x [x+(2+6)]=0 the X TO and Man I and and and the X = And I and (22) 1 has an 102.1=100.2 min 1. 109 - 1.208 2003 (loe it x 3.8258 Spen = 7.931 of one S and lo man & sandy # 7- 2132 when when A State State S of a look Farit . 0 % = 1 . 2046 3.2 But 18.27050.5 .001 = 0.4773 = 0.0 18 10 Ans. P. T. O. · is april P .5 C 201

12th 1961 At & shillingste price of one gross in 1200 percent price fore perceli * 20×12 X = 5 x pence frice one seare in pennies in 1st case. : 20 x 12 = 2380 = to. of pencils which can be longht for \$ 1 in 1st case : 2880 + 120= 2880 + 120x " " " " " 2nd case $\frac{240}{2880 + 120x} = \frac{240x}{120(24+x)} = \frac{2x}{24+x}$ fince = price of one peneil in penning where is a state in a st 20 (22) = 40% preceptice for some of pencilin 2nd case. $\frac{5}{3}\chi - \frac{10\chi}{\chi + 24} = 2 \quad \therefore \quad 5\chi^2 + 120\chi - 120\chi = 6\chi + 144 \quad or$ - 5x² - 6x - 144 = 0 ∴ (5x+24)(x-6) = 0 ∴ x = - = 24 tobe diseas or X = 6 Ans. Hence Price & megsoco = 6 shillings Ans. 2. (i) Ta-x + Juix = vat 16 squaring, we have : a-x+2 V(a-x)(b+x) + k+x = a+2 Jab+b = a.b = a.b + (a-b)x - x'= h.b. or x'- (a-b)x=0 or x[x-(a-b)]=0 : X=0 Ans. 1 or x= a-b Aus. I $\int \frac{a^{p-p}}{\sqrt{a^{p-p}}} \times \left(\frac{a^{p-p}}{\sqrt{a^{p-p}}} \right)^{n} = \left\{ \frac{a^{p-p}}{a^{p-p}} \times \left(\frac{a^{p-p}}{\sqrt{a^{p-p}}} \right)^{n} = \left\{ \frac{a^{p-p}}{a^{p-p}} \times \left(\frac{a^{p-p}}{\sqrt{a^{p-p}}} \right)^{n} = \left\{ \frac{a^{p-p}}{a^{p-p}} \times \left(\frac{a^{p-p}}{\sqrt{a^{p-p}}} \right)^{n} \right\} = \left\{ \frac{a^{p-p}}{a^{p-p}} \times \left(\frac{a^{p-p}}{\sqrt{a^{p-p}}} \right)^{n} \right\}$ = a + (0-2) = a + m (A-2) Ans. 2 log 0.001021 = 6.0180 5 log 16.02=6.0230 3. (i) 7 (0.001021)2 x (4.003)3 = 1.8072 4/ 3.001=1.9088 3 log 4.003 (16.02) × (3.001) log Num. = 5.8252 logDen = 7.9318 1090.001021 = 3.0090 log Den . log 4.003 = 0. 6024 = 7.9318 7 log x = 13.8934 log 16.02 = 1.2046 3.001 = 0.4772 logx = 2.27048 ... = 2.2705 ... = 0.01864 Ans. X P. T. O. Qua. 11 - 1+5 0 24

months with a second - 4 th year 12/1/13 A the pass it is required to find they W in terms the particular to the an agring the second from the particulation of the set of the state of the sta A tong the state of the of the ost of the beat the state 20 (3 xin) - non-prospice gour sorral parent i 2 mil care flere free 7 (b) It the a the barn of an Arathastic from season where to filling fills a whereas and the set in the state of the set of the set Hearth a the second and a the first and the first and the second and the second and the first and the second and the first and t and the of the set of the the set of the set - its Fighter and the inter of the fight of the 17 (serversers) and the set of a set of the serverses (ii) [all affer a support he go by the for the state of the all in white and a start of the sease a lit as the said that and the fille so man was the a tage to tage - 1660" - 1660" - 1660 - 1600 - 160 alte 663. mg. 6024 sigts but this was alf all and alf all and and STREET & BRANCE & BURNESS atigenters and to the strand that any and and all the the Country Standard Aller and a state of the state 17 - 12 * is speed

: log N = - log Y : log 70.56 = log 70.56 y log y 17 log 17 . distance driven in the pat number = a = 5 miles 7 = = 10000 Ans. 1 5. y = 16 x (4-x). 00 1148

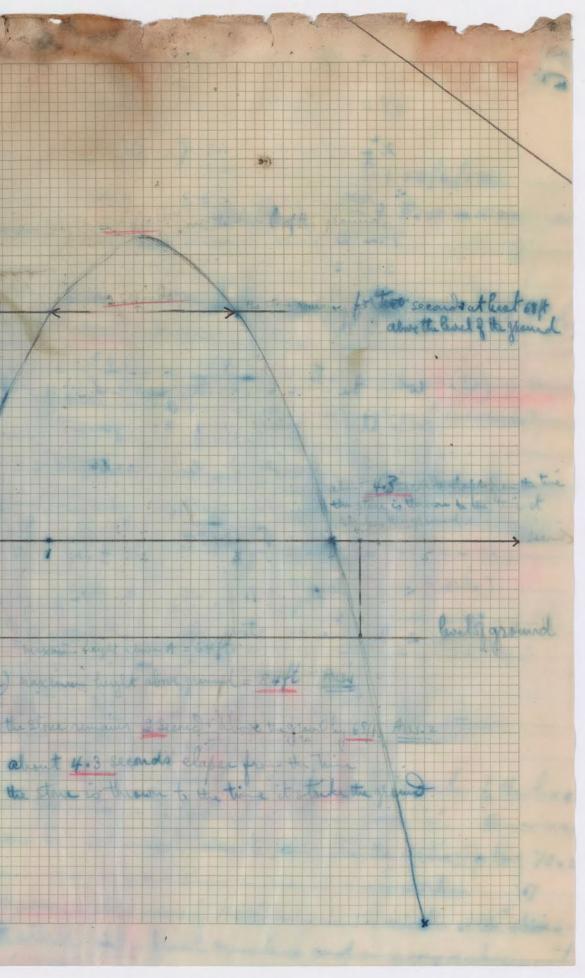
264 48

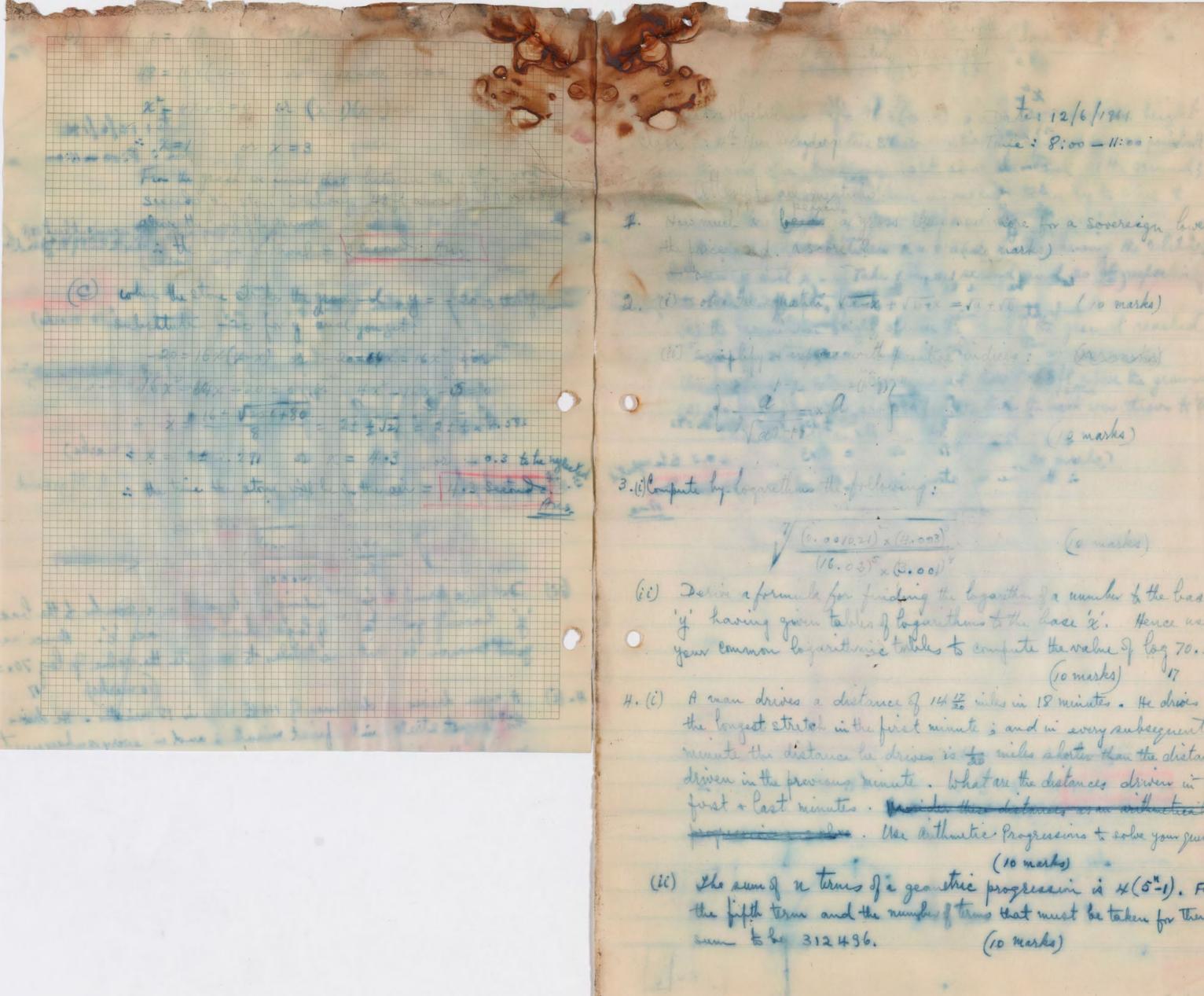
0

5-80

Juti bolgebia 4th year 12/6/1961 (15 Suppose it is required to find log N in terms of logarithms to the " lit log N=z : N=yz : hgN=z log y : z= to = log 20.58 = 1. 8486 = 18486 = 1. 50243 ... = 1.5024 Brut to 4 decemal places this. 4. (i) 14 20 = the sum of an Arithmetic pro usin whose to. of terms is 18 + whose common difference is (- =). Applying the formule s= 4 free $4xe_{got}: 14\frac{17}{20} = \frac{18}{2} \left\{ 2a + 17 \left(-\frac{1}{20} \right) \right\} x 14\frac{17}{20} = 3 \left(2a - \frac{17}{20} \right)$ $\therefore 18a = 14\frac{17}{20} + \frac{9 \times 17}{20} \quad \forall 18a = 14\frac{17}{20} + 7\frac{13}{20} \quad \forall 18a = 22\frac{1}{2}$ 1 18 a = 45 : a = 45 a = 5 : l=a+(4-1)d $\therefore l = \frac{5}{4} + 17(-\frac{1}{20}) \quad \delta 2 \quad l_8 = \frac{25}{20} - \frac{17}{20} \quad \delta 2 \quad l_{18} = \frac{3}{20} = \frac{7}{5}$ and in in a last is = t = 2 miles & Ames (ii) N= H(5"-1) . Suppose n=1, is, # the 12them = 4(5'-1) = 16 again Suppose N=2 " Sz = 4(5-1) = 4x24 = 36 = 1 at + 2nd times . 2 tem = 96 - 16 = 80 : r = 80 = 5 : 1 = ar = 16(5) = 16×625 two y s= 312436, there 312436 = 4 (5-1) or 5 = 312436 +1 or 5"= 78124+1 or 5= 78125 or 5= 5" in N=7 Ans. 2. maxin hight above point A = 64ft makin height = 64+20 = 84ft. · gron 9 0=64+20=84/ atury=48 , 2 - 4 x +3 - 1 = 2 secondo ~ the stone thicks - 30 ft alwe grow bulcolin y=10) the growt, y= -20 - level of grand # 4x2-16 x +5=0 · スモ 1(+ 4) = 2+ = 2+ = Val 5 = 4.5. .. Jak.

henry MI hand Haule 68 -1 -1. 2204 = 18486 = 1 502,43 ... = 1.5024 Emet H decent fless that. 20 4. (E) It For a the Burn & all Avillantic program where to Atran 2018 a where " -Smann difference in (- -) . Afflying the formula 2= 1 2 22 gat \$ 14 the \$ \$ {2 { 2 a + 17 (- ta) } en 14 the = 3 (2a - 23) ·· 180 = 14 20 + 3x12 wh 18 1 = 14 2 + 7 40 wh 180 = 22 + Wayan frent whom It = = \$ +17(- to) 32 (0 = 35 - 12 02 413 = 20 = a to a first hard in the set of a set o (c) about 4.3 seconds chaper pro- the Thing "I'm alter a subject a set and the state of the alter and apparents a star f(Sa) - fart + st a st the and -80 1.2MB 0000 stand the Branche H(Sta) - of B = The Hold of Lat. 279913 5+11 - 11 5 = 78136 - 41 5 25 5 - 11 11 = 9 + 15 25 - 11 11 = 1 The atting mule think invest high + that the settle -(so maisting to a (ii) the prince of their of a per stree progeneries if it The fight that and the work of the last much he taken for (10 Reality) - 12-182+50 12 A 312 1436. Autor State -- 80 10 - CAS -





ter 12/6/1961 no e ma Sovereign lever 13 Dec Maria C masks · (o marks) (ii) Define a formula for finding the logarithm of a number to the base 'y having given tables of logar them to the have 't'. Hence use your common logarithmic tables to compute the value of log 70.56 (10 masks) the longest stretch in the first minute; and in every subsequent menute the distance he drives is to miles shorter than the distan driven in the previous minute. What are the distances driven in the first + last minutes . presider these distances as an arithmetical propressions to solve your gustin (10 marks) (ii) The sum of ne terms of a geometric progression is 4(5"-1). Find the fifth term and the number of times that must be taken for their

- " is yo 160(+-x) , & Appropriate the transfel is fast that they a store that within by af ford when a point of on the next of a building take about the head of the granneds and it had averable the lamit on research taken by the solare the remark the height of from that part. It is my immerican Brown is partice thinking the a a and king planning the calesticity follow y and x . Take I in a 1 acres and 20 & requestion of (a) the very minute light all as the hall the year it reached tighter showing -(b) was long the string surgering at small (B) (ghase the ground, (a) have realing hearing a support of the link the work inou the and to the (show i have all all the state it wants) Cohene al O your comments in aller to make of the part of the product of the prover \bigcirc A room dragen a destroyed is the first in 18 minutes . He dreater month the Sinterna is driven in the will a latter the distance - the interior and an and the state of the interior the second stand we also to an and the bither the for and a set and the game to and (10) alle armed in there of a gen stric programmin is 40 (5"). Find matt up what is have that with I want the have mant they all un to be as a set of a second of

reach the height if from that paint. & by the stone,

Final Exam in Agebra Cart. 12/6/134 June 1961 a quation y = 16x (4-x) , y' represent the height in fact rise by a stone thrown vertically upward for a point A on the roof of a milding 20 ft above the level of the ground; and 'x' represents the time in seconds taken by the stone to Drow a graph between x = 0 and x = 5 showing the relationship Between y and x . (Take 1 in. = 1 second and 20 ft respective .) From the graph, find (a) the maximum height above the level of the granned reached (b) how long the stone remains at hast 68 ft above the ground, (c) how many seconds elapse from the time the ball was thrown to the time the stone strike the ground. (20 marks)

have and Izobra bject 4th Yoar Secondary Close : Attennt all questions : AL a D O (i) Solve the equation I take the 1 sell Errol (ii) Simplify and express with positive indices : 3. (i) Compute by logarithms the following : Colimn al (0.001021),(4.003) progressions to solve the question. their sum to be 312496. y from that point. From the graph find : stone, (0)

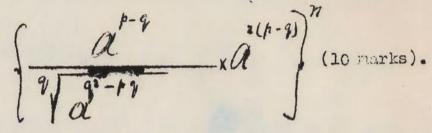
Sharr.sh Secondary School

Minal War instions. June 1961.

Date : 12/6/1961 Tine : 8:00-11:00 a.m.

How much are pencils a gross then 120 more for a sovereign lovers the price 2d. a score ? (20 marks).

 $\sqrt{a - x} + \sqrt{b + x} = \sqrt{a + \sqrt{b}}$. (10 marks).



(10 marka).

 (ii) Derive a formula for finding the locarithms of a number to the base 'y' having given tables of logarithms to the base 'x'. Hence use your conven logarithmic tables to compute the value of log70.56.
 17 (10 marks).

4. (i) A man drives a distance of $14\frac{17}{20}$ miles in 18 minutes. He drives the longest strotch in the first minute; and in every subsequent minute the distance he drives is 20 miles shorter

> than the distance driven in the provious minute. That are the distances driven in the first and last minutes ? Use arithmetic (10 marks).

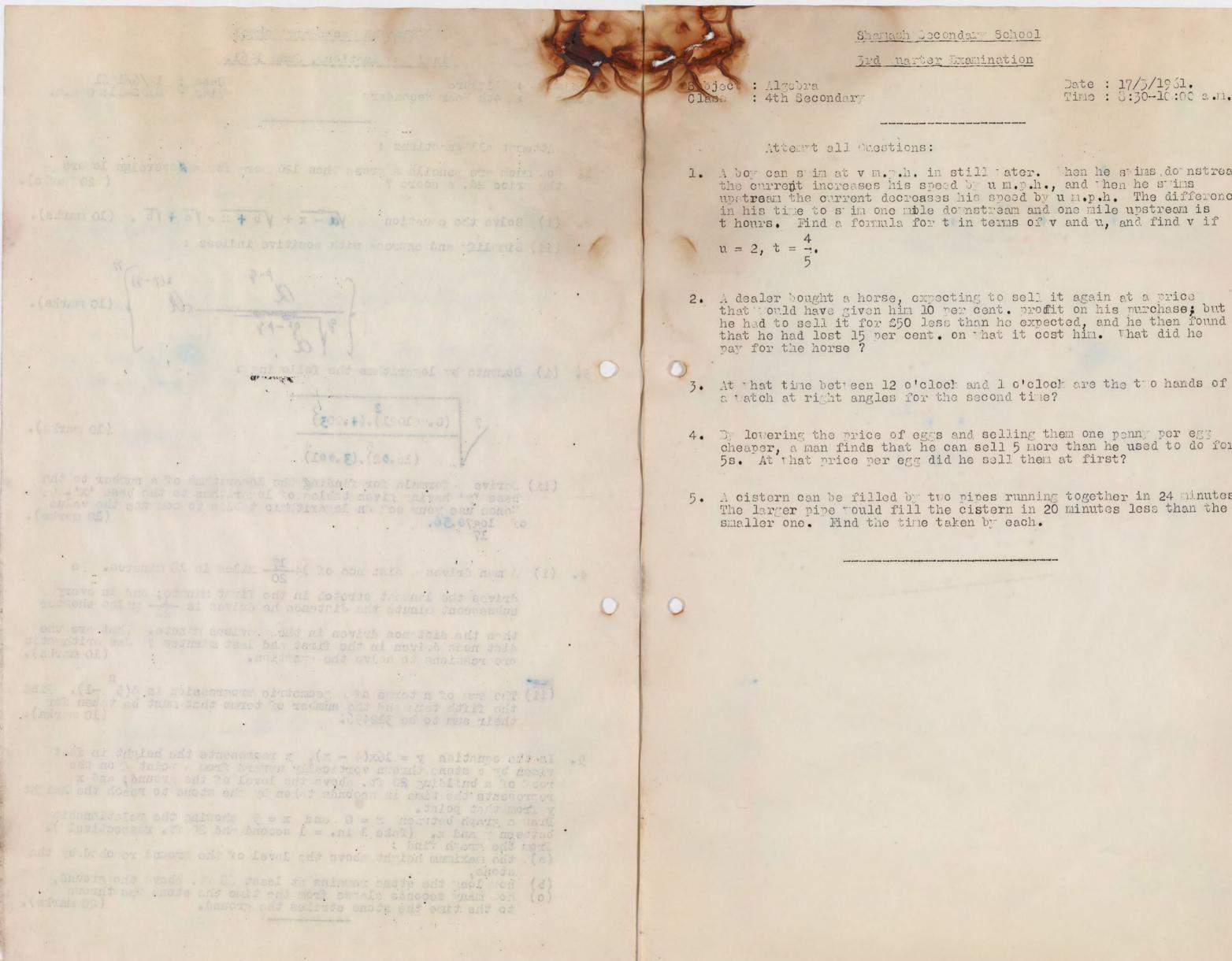
(ii) The sum of n terms of a geometric progression is 4(5 -1). Find the fifth term and the number of terms that must be taken for their sum to be 312496. (10 marks).

5. In the equation y = 16x(4 - x), y represents the height in feet risen by a stone thrown vertically upward from a point A on the roof of a building 20 ft. above the level of the ground; and x represents the time in seconds taken by the stone to reach the height

Draw a graph between x = 0 and x = 5 showing the relationship between y and x. (Take 1 in. = 1 second and 20 ft. respectively).

(a) the maximum height above the level of the ground reached by the

how long the stone remains at least 68 ft. above the ground, how many seconds clapse from the time the stone was thrown to the time the stone strikes the ground. (20 marks).



Shamash Jecondary School

3rd marter Examination

Date : 17/3/1961. Time : 8:30-10:00 a.m.

1. A boy can s im at v m.p.h. in still ater. Then he stins do natreal the current increases his speed by u m.p.h., and then he stins upstream the current decreases his speed by u m.p.h. The difference in his time to s im one mble domstream and one mile upstream is t hours. Find a formula for t in terms of v and u, and find v if

3. At that time betteen 12 o'clock and 1 o'clock are the to hands of

cheaper, a man finds that he can sell 5 more than he used to do for 5s. At that price per egg did he sell then at first?

5. A cistern can be filled by two pipes running together in 24 minutes. The larger pipe yould fill the cistern in 20 minutes less than the

3rd marter Examination

: Algobra : 4th Secondary Class

Attenut all Questions:

- - u = 2, t = -.5
- a watch at right angles for the second time?
- 5s. At that price per egg did he sell then at first?
- smaller one. Find the time taken by each.

.e. o Ban -de E - Nair

- And the provide a borres, or coting to soll it spain at a price of the second of the s . 14
- 2.4 . (2.62) that a set is o'clock and i o'clock are the to set is a start o
-

Shanach Locondary School

Date : 17/3/1961. Time : 8:30-10:00 a.m.

1. A boy can s im at v m.p.h. in still tater. Then he stims do natrean the current increases his speed by u m.p.h., and then he stims upstream the current decreases his speed by u m.p.h. The difference in his time to s im one mble do natream and one mile upstream is t hours. Find a formula for t in terms of v and u, and find v if

2. A dealer bought a horse, expecting to sell it again at a price that could have given him 10 per cent. profit on his purchase; but he had to sell it for £50 less than he expected, and he then found that he had lost 15 per cent. on that it cost him. That did he pay for the horse ?

3. At that time betteen 12 o'clock and 1 o'clock are the to hands of

4. By lovering the price of eggs and selling them one ponny per egg cheaper, a man finds that he can sell 5 more than he used to do for

5. A cistern can be filled by two pipes running together in 24 minutes. The larger pipe yould fill the cistern in 20 minutes less than the



took n't Bl, which is on it today of

lo deles la serie de la recenter della de la serie della de la serie de

3. distribution is stable to the contract the terminal formulation.
3. distribution is a tracked of the tracked of the contract of the contract.

Shamash Secondary School Final Examination, June 1960.

Subject: Algebra Class: 4th Year Secondary

All questions are to be attempted.

1. (a) If $X = \frac{2Y-1}{3Y-4}$, and $Y = \frac{Z+1}{Z-1}$, find Z in terms of X.

(b) Prove that, if a + b = C, and none of these quantities is zero, the expression

 $\frac{1}{a^2 + b^2 - c^2} + \frac{1}{b^2 + c^2 - a^2} + \frac{1}{c^2 + a^2 - b^2}$

is equal to zero.

- to Zero when X = 2.
 - values of X for which the expression is Zero.
- 3. at 60 miles per hour the train arrived at its destination on time. How far is it from B to Q?

(a) Compute by logarithms the following expression: 4.

 $7\sqrt{\frac{1.004^2 \times 0.000401^3}{516.2 \times 2.003^5}}$

- 5. of the first 15 terms.
 - and the sum of the 7th, 8th, and 9th terms.
- - (b) Use your graph to solve the equations:

(i) $X^2 - 3X + 2 = 0$ (ii) $X^2 - 3X - 4 = 0$

Date: 17/6/1960 Time: 8:00-11:00

(8 marks)

(8 marks)

2. (i) Find the value of b for which the expression $X^3 - 2 - b(X-1)$ is equal (5 marks)

(ii) Factorize the expression for this value of b, and find the other

(12 marks)

A train left station P at 10 a.m. on a non-stop run of 300 miles to station Q where it was due to arrive at 4:15 p.m. At a station B some miles from Q it was 34 minutes behind the Scheduled time. But by travelling from B to Q

(17 marks)

(8 marks)

(b) Use logarithms to solve the equation $4^{2x} - 8 \times 4^{x} + 12 = 0$ (8 marks)

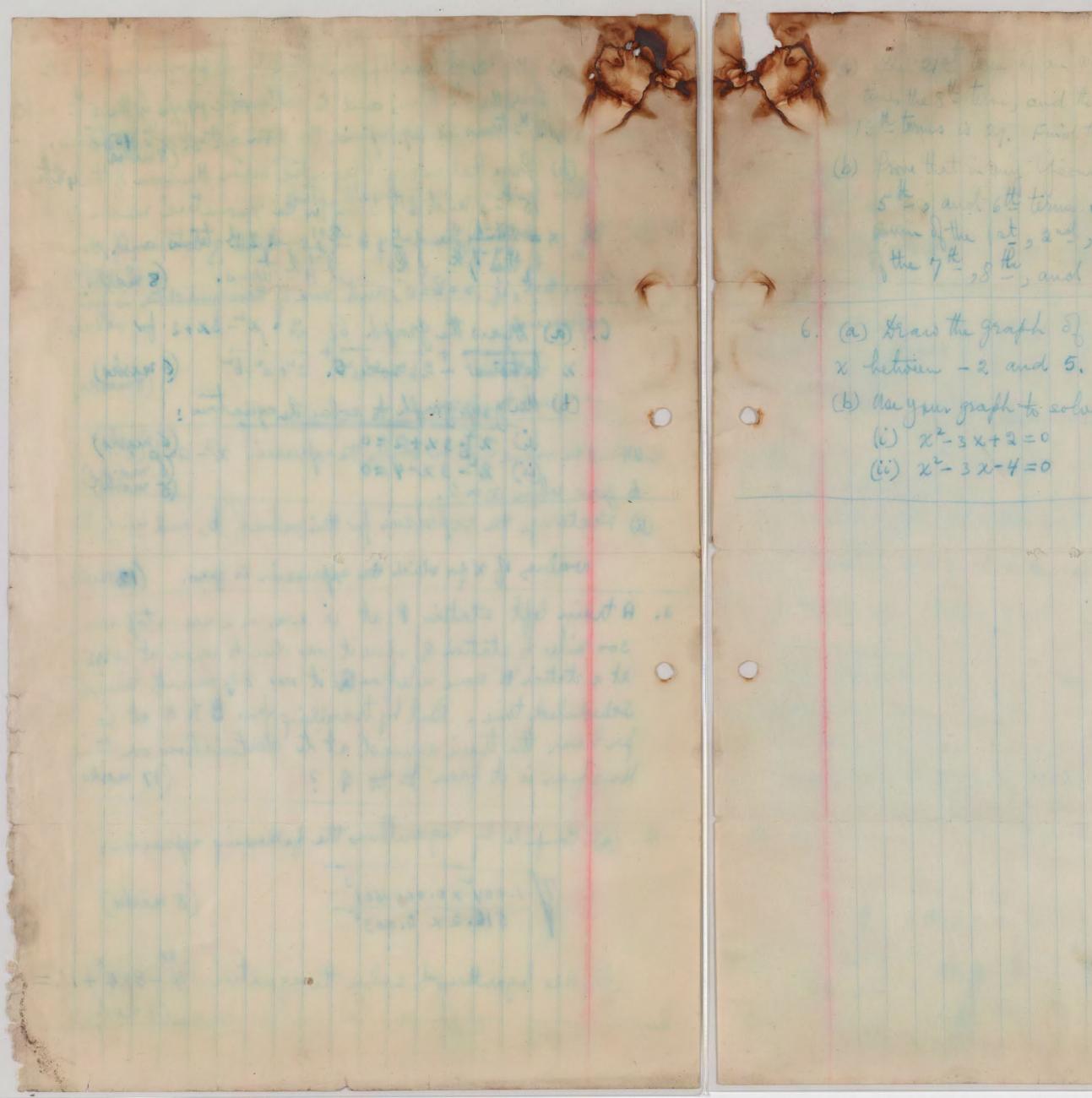
(a) The 21st term of an arithmetical progression is $2\frac{1}{2}$ times the 8th term, and the arithmetic mean of the 5th and 13th terms is 29. Find the sum (8 marks)

(b) Prove that in any Geometric series the sum of the 4th, 5th, and 6th terms is the Geometric mean of the sum of the 1st, 2nd, and 3rd terms (8 marks)

6. (a) Draw the graph of $Y = X^2 - 3X + 2$ for values of X between -2 and 5. (6 marks).

(6 marks) (6 marks)

-Dete: 17 /6/1960 a a M - m : 8 : - - - T Disperse to backber Ha Tune: 8:00 - 11:00 as fit and the of being constated of a state of the man If x = -14-1, and y = 3+1, find g in terms of x. Front that, if a + b = c, and nove of these quantities is a2+b-c2 + b+c-a2 c+a2-b2 (8 marks) co equal to gero. -2 (7) 2. WFind the online of b for which the expression x3- 2-b (x-1) (5 marks) to zero when x = 2. (ii) Factorize the expression for this value , and find (1) walks of x for which the appression is zero. (12 merly 3. A train left station P at 10 a.m. on a non-stop run 300 miles & station of where it was due to arrive at 4:15 Q at a station B some mills from a it was 33 minuts behind Scheduled time. But by travelling from B to Q at 60 1 pr how the train arrived at its destination on thing Hustar is it from B to g ? (17 marks (b) Prove they in any decomparies one and of the 4th, 5th, and 5th term to the first fam. 4. (a). Compute by logarithms the following expression ; 1/ 1.004 × 0.000 401 (8 marks 516.2 × 2.0035 (b) Use logarithms to solve the requation 4-8×4+1%



us is the geometric mean purper of the st, and, and I'd terms and wh the 7th 28 the and 9th terms. (8 marks) 6. (a) Stais the graph of 4 = x2 = 3x+2 for value, (6 masks) (b) Mar your grafh to solve the equations : (6 marks)

los into factores : (1) 3 (2x-5) - 4 (2x inde: (i) "it interes of h and "k" (a make (iii) The makes of V k- 4a in trans of the 5(4a-K) 0 (3) Solve for a Managertine 3 - 21×32 +2% I woulding to weet the ship at 30 miliopen have . The Intrain the two when the shot was first, taking the relacity brin the graph of y= 6+3x-x+ for values of x from -2 to 5 taking (6) that time I series is to 3 - 7 2 3 - ? Find it with the

SHAMASH SECONDARY SCHOOL Final Examination, 1958-1959. Subject : Algebra : 4th Year Secondary Class All questions are to be attempted. 1. (a) Resolve into factors: (i) (ii)(iii) (b) If $15(2x^2 - y^2) = 7xy$, and if x and y are both positive, find 2(1)Using tables, compute by logarithms the value of : (0.004678) x 1.002 (30.04)compute, without using tables, the value of : 3/41503, correct to four sugnificant figures. (10 marks). 3. Accertain alloy contains 6 parts by weight of a metal A and 5 parts by weight of a metal B; another alloy contains a parts by weight of A and 13 parts by weight of B. If these alloys are melted and mixed together, how many pounds of the second alloy must be mixed with 11 pounds of the first alloy to make a mixture which contains 40 per cent. of A? (20 marks).

terms of a certain geometric series, n being any positive integer. Find the first term of the series, the common ratio, and the formula for the n-th term. (10 marks).

- (b)
- - 3x + 2y = 12.
- (iii) From the above graphs find two roots for the simultaneous

Date : 28/5/1959 Time : 8:00-10:30 a.m.

(7x +	8 ? - 2(7x	+ 8) - 15.	(3 marks)
2(x -	yf - 3x +	3y - 5.	(4 marks)
a(a -	4) - b(b -	4).	(3 marks)

the ratio of x to y. Use the shortest possible way. (10 marks)

(10 marks).

(ii) Given : $\log 70 = 1.8451$, $\log 110 = 2.0414$, $\log 34.62 = 1.5394$,

(a) The expression $2 - \frac{1}{3^n}$ is a formula for the sum of 'n'

The first and second terms of a series are 'a' and 'b' respectively. Find the n th term (i) if the series is an arithmetic series; (ii) if it is a geometric one. (10 marks).

5. (i) Taking $\frac{1}{2}$ in. as one unit on the x-axis and on the y-axis, plot the curve $y = \frac{1}{4x^2}$ for values of x between x = -4 and x = 4. (7 marks). (ii) On the same axes of coordinates draw the graph of the equation (6 marks).

equations $y = \frac{3}{4x}^2$ and 3x + 2y = 12. Verify your graphical answers by solving algebraically. (7 marks).

·· Fig.

... DELESSE : STOC

Real Bring .

Harry Carl in process (wires)

laine the state of the state of

is a shirt of the Astronauter and a share of the state of the A state as The and the second state of th A 1= (14 (1-))

is and the work of the off the part of a work to the the the

A THE A DESCRIPTION OF A DESCRIPTION OF

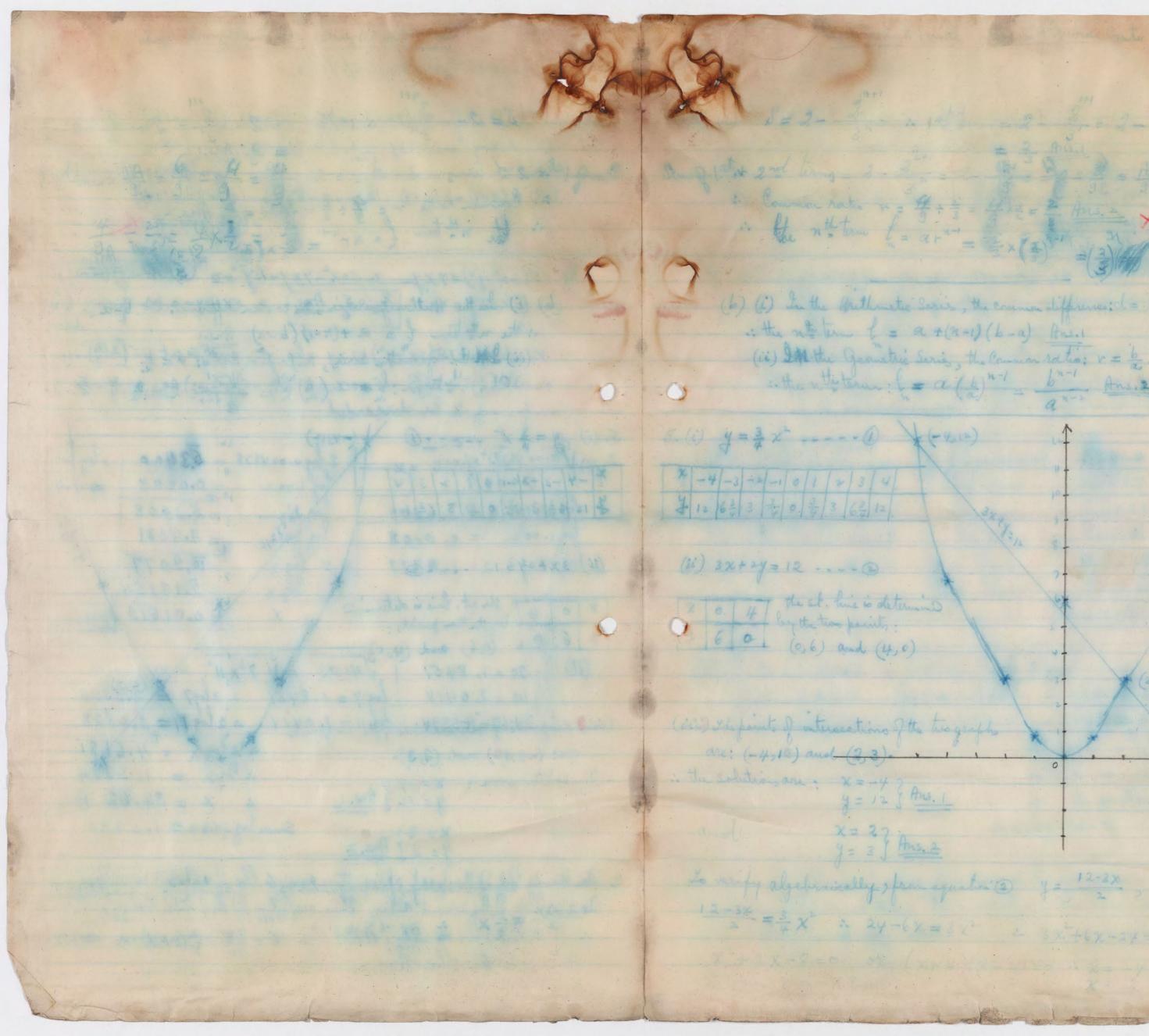
200.0 E

2:1812 the set of the set of the set of the set of the

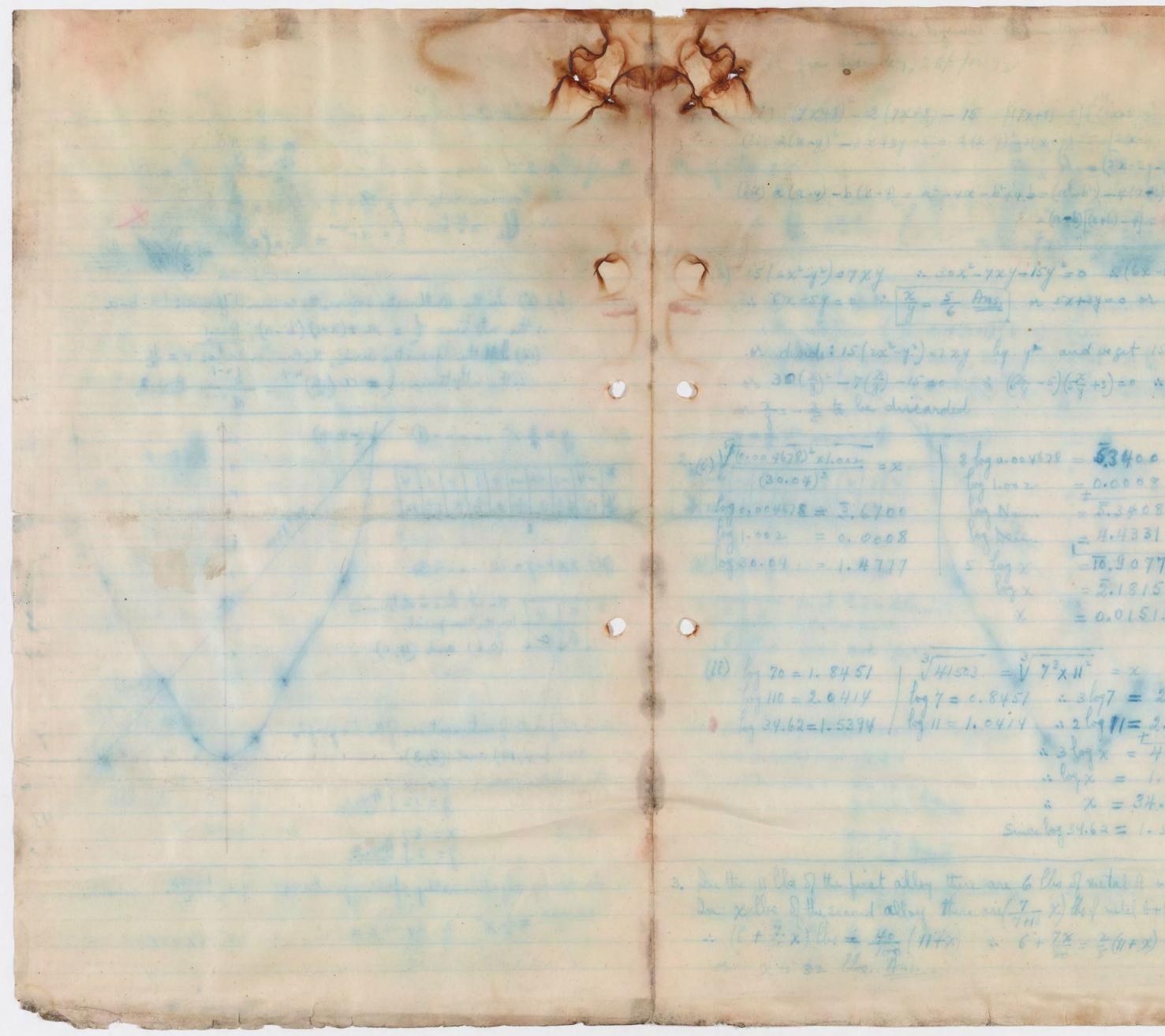
and the second second (; ;) C. D. Frankling 1 . 11

the second first the second 1111

The sub-state of the state of the second state



(b) (i) In the Muthimetic Series, the common differences: d= b-a Ans.2 Substitut



(2) a la-y) - b (b-4) = a - 4 a - b + y b - (at-b) + + (a 15/2x - y = 7 x y = 30x - 7x y = 15y = 0 = (6x - 5y) (at Exesy= = 12 x = 5 Ans - or sx + 3y=0 or or divide: 15 (2x - y) = 2 xy by y and we get 15 (2 (4) -1 -2 log a. co 4678 = 5340.0 = 0.0008 - 5.3408 = 4.4331 10.9077 = 2.18154 = 0.01513 A 10 = 2.0414 / log y = 0.8451 = 3log7 = 2.5353 1 19 34.62=1.5394 / log 11= 1.0414 a 2 log 11= 2.0828 x 3 by x = 4.6181 alogx = 1,5394 : x = 34.62 Since 103 34.62 = 1.5394 2: x 1 lu = 40 (11+x) ~ 6+7x = 2 (11+x) ~ 120+72

SHAMASH SECONDARY SCHOOL Final Examination, 1958-1959. Date : 28/5/1959 Time : 8:00-10:30 a.m. Subject : Algebra : 4th Year Secondary Class All questions are to be attempted. 1. (a) Resolve into factors: (i) $(7x + 8^2 - 2(7x + 8) - 15.$ (3 marks) (ii) $2(x - y^2 - 3x + 3y - 5.$ (4 marks) (iii) a(a - 4) - b(b - 4). (3 marks) (b) If $15(2x^2 - y^2) = 7xy$, and if x and y are both positive, find the ratio of x to y. Use the shortest possible way. (10 marks) 2(i)Using tables, compute by logarithms the value of : $(0.004678)^{3} \times 1.002$ (30.04)³ (10 marks). (ii) Given : log70 = 1.8451, log110 = 2.0414, log34.62 = 1.5394, compute, without using tables, the value of : 3/ 41503, correct to four sugnificant figures. (10 marks). 3. Acertain alloy contains 6 parts by weight of a metal A and 5 parts by weight of a metal B; another alloy contains 7 parts by weight of A and 13 parts by weight of B. If these alloys are melted and mixed together, how many pounds of the second alloy must be mixed with 11 pounds of the first alloy to make a mixture which contains 40 per cent. of A ? (20 marks). 2^{n+1} 3ⁿ is a formula for the sum of 'n' (a) The expression 2 - -terms of a certain geometric series, n being any positive integer. Find the first term of the series, the common ratio, and the formula for the n-th term. (10 marks). The first and second terms of a series are 'a' and 'b' respectively. Find the n th term (i) if the series is an (b) arithmetic series; (ii) if it is a geometric one. (10 marks). Taking $\frac{1}{2}$ in. as one unit on the x-axis and on the y-axis, plot the curve $y = \frac{3}{4x^2}$ for values of x between x = -4 and x = 4. 5. (i) (7 marks). On the same axes of coordinates draw the graph of the equation (ii)(6 marks). 3x + 2y = 12. (iii) From the above graphs find two roots for the simultaneous equations $y = \frac{3}{4x}^2$ and 3x + 2y = 12. Verify your graphical answers by solving algebraically. (7 marks).

serit a Transferrer

a had a stand when the stand it was a stand of televilies . As a star - to any the second termination of the

a start word Band Line and start a stall a motion

withe to the first the chief have to the first the state the second state of the second state of the second state A THERE AND THE AND THE ADDRESS AND ADDRES

to be also be have there and the star of the second comparison of the

and the distance of the second s

and a second second

Find the truth the of the sun of the part I have 1 to trittentied barrow where at the is 3-2 m.

a motorist travels a certain distance & at a certain

Shamash Seendary School Finil Examisation, 1955-1956 Date: 30. [1 Jate: 30. [1 This: 4th Year This: 8:00 Date: 30 5 56 Time : 8:00 - 10:00 . 2. 4 all question are to be attempted: In 1955 a housewife could buy 7 more eggs for 10 2. 6 d. than she can bruy for 14 st in 1956, when the price per egg has increased by one penny. Find the price of eggs, per dozen, in 1955. (Ans. 25.) uniform speed. If his speed had been 4 mils per hour greater, he would have saved 10 minutes on the Journey; and if his speed had been 9 mils per hour greater he would have soved 20 minutes - Find the distance X. (Ans. 60 miles) 3. Using one fair of axes draw graphs of x2 and of ±x+2 between the values of $\chi = -3$ and $\chi = +3$, choosing your own I scales. From your graphs read off the solutions of X= ± x+2. By drawing a further graph find the Solutions of X2 = 1/2 +1. (Ans. 1.7 or - 1.2 ? 1.3 or -0.8). I.i) Compute by logarithms V (0.006204)⁵ (0.006204)⁵ (ii) Find the value of x from the equation 4 x 3=243 NAF. (i) The sun of the first 29 times of an Authinetical progression whose common difference is (-0.8), is zero. Find the first torm. (Ans. 11.2) (ii) Find the tenth term + the sum of the first ten time of the arithmetical program whose n the term is 3-2n (Ans. -2, 22.5).

We walk how in allowing with an fifth, my 10 - 1 Side - 1080 8.m Oll for these to be attempted. " ":00 - 10 -00 - 1. touch (1+2) + (x-3)" an coast twee " . Header faind the put hants (E. B. M. Some (1-1) & (6-4) Where and the Jak the squal have all and the satisfies ((and a first hit the (4) A2-924 + 48 - 24 + 24 + 620 S. Freedorice : (i) 6 24 - 24 - 29 - 1 fond the price of ages for The control of the second of the last had been of miles and that is a state of the stat by any and the second of former and the strate and the second To a manufacture produces a note day at a cost of 2 440. 44 is a divide at a love a unde Kay dealer selle it to a constrian I are that the dealers personatings profit is spull the manufactures I unlage have find at what price the manufraction and the ca (the shalles a by X'= - 1 X +1 (Ans hit on - 1.2) le matter and a second for when I to them the frame and to a lake I that make by the second which the wind the second of the there a state of a insite of a R can be to be (i) the ser of the first of this first for the first produced and program (i) for the trail the train + See and Star forest the Way (i)

in the fire when the state cling and 5 remains tion, a plumber 1254 Date: 212 Sept., 1954 Time: 8:30 - 10:30 2.m all que times are to be attempted. ". Find by an much (2+a) + (2-a)" exceeds twice 2. Hence find the dilloure theen (4.3) + (4.1) and 2(4.2)2. 2. The the equations: A) 3x2+1.7x-2.6=0 (correct to too decimal pla (ii) 4x - 8xy +4y = 3x + 3y - 1=0 3 x+2y=7 3. Factorise : (1) 6x + 7x - 29 (p (p + p + q =) - (p - p + q =) -(iii) x = x + 2x -1 4. (i) What kind of Drive in \$ 2 70 20 2 5 show ? Find its with and the alm of the hat ten terms. (ii) Fire numbers in H.P. add up to 26. When they we increased by 1, 40 43 respectively they form a B.R. What are the much 5. It manufactures produces a motor car at a cost of 2 440. He selles to a dealer at a loss, and the dealer sells it to a customer for 2 480. ven that the dealers percentage profit is double the manufacturers percentage loss, find at what price the manufacturer sold the car 6. braw the graph of y= 6+3x-x2 for values of x from -2 to 5, taking Two. as white on the x-assis and this as unit on the y-axis. From your graph find (i) the maximum value of y. and (ii) between shat values of x the function is positive ... a attended & toxing a toxing a little

- 172 - 1 (252 - main - Maxim Nov? 10 Pro the part in the ser of to account decist Corpor 1 490,0005 1 403 - 14.00 5 60 0.03 · LILIN 1. Stoppers ----ad the a same of SPECE TO SERVICE Lassad - Lowpolt - REALS -10000 Arres an ingent 4 0840 ··· THE SHOW all Ball Cal C GAME ton it The hand and T. 868 . X . M. So St. 44.2 and a said in the said in a fair that again a fair that again a and 3 . It at the state of a dealer and the approved 44 - 40 - 8 - 54 al the of ref by 12 - 20 a 3. (b) be we have a fill is a apart & the the set that the arm of the Date of Britter and I and a grant of the Constant 1= 1 2 3 = 2024 for a could a to a state - a to for the form a lot form - a la to to (ii) (raze x an a lange the the all a land to have a line to Allen and the grant and the product of the JYRX JU a the the grant three a part of a line

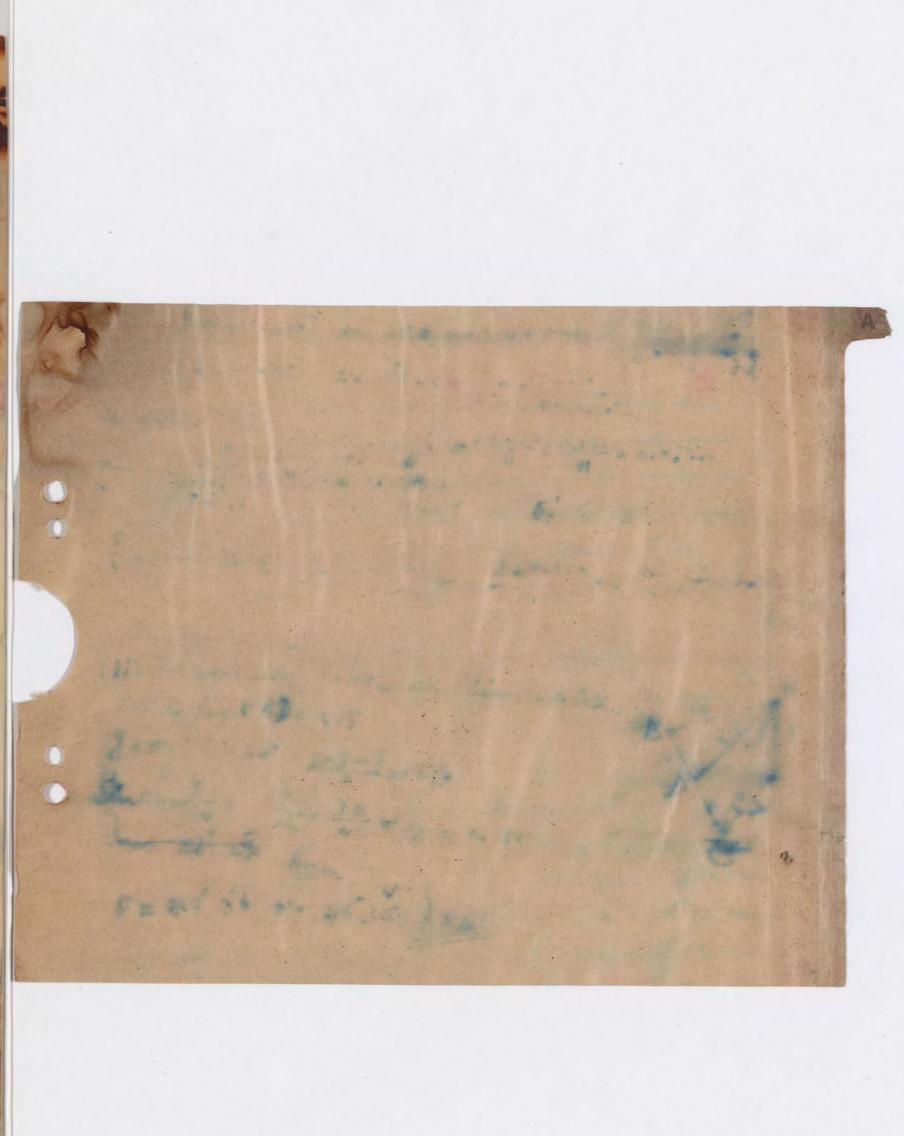
a tweet to any 1153 -1854 Questions alk : 4th 1 " 4m/p-4 2775 = 1 : (5x-1) (75x-21) - 5 (5x-1) (75x-21) = (75x-26) (5) * 42 x -175 Vx +147 - (35 x - 140 Vx +105) = 7x - 33 Vx + 26 - 2 1/2 = 16 * Vx = 8 - x = 64 Aus. 3/1.002 10.005001 2 log 0.005001 = 3.3982 3 log 1.002 ==: 0.0003 = 5.4313 2 (na 0100300/= T. 342 W(0,03)3 × (4.002)5 3690.03 5-694,003 = 3.01201 log 1.002 = 0.0003 Clog 0 1005001 = 3,6931 = 10g Nume, = T.3422 3 logo. 02 = 3.4313 | lighten. = 7.8584 090.03 = 2.4771 5 694.003 3.0120 7 +48 44 6940003 = 0.6024 2.4433 72 = lyben = 7.85848 : 2 = 0.30 51 (1) 2 = 8" ; 3" = 3" , a type (m) top 2 = (3) ; (3) = 3 : 2 = 2 and 3 = 3 : K=3y+3 and y= 2 - 3 x-3y=37 " y=6 } Ans. 3. (2) G= 15 | l= ? | 15 = a+2d : 75=15d : a= 15-10=5 hig= 90 | 5 = 3 | 90 = at nd : d= 5 fa = 5 d=5 how = a+ 99 d = 5 + 9925 = 500 Hus. 1 So = = (a+1) = 100 (5+500) = 505×50 = 25250 Aus.2 $s_1 = \frac{1(x^2+1)}{x-1}$, $s_2 = \frac{1(1-(-x)^2)}{1-1}$; $s_3 = \frac{1(x^2)^2-1}{1-1}$ $S_{1} \times S_{2} = \frac{\chi^{2}}{\chi^{-1}} \times \frac{\chi^{n} + 1}{\chi^{+1}} = \frac{\chi^{2n} - 1}{\chi^{2} - 1} = S_{2} \quad Q \in D.$ 18=x=32+3 4. x -3x+2= + i y=x -3x+1 i y=1 x=2 mail : If we subtract if your y, sweget you 3,=1 the solution of x = 3x + 2 amounts to solving y, and y 3 Simultaneously & themas

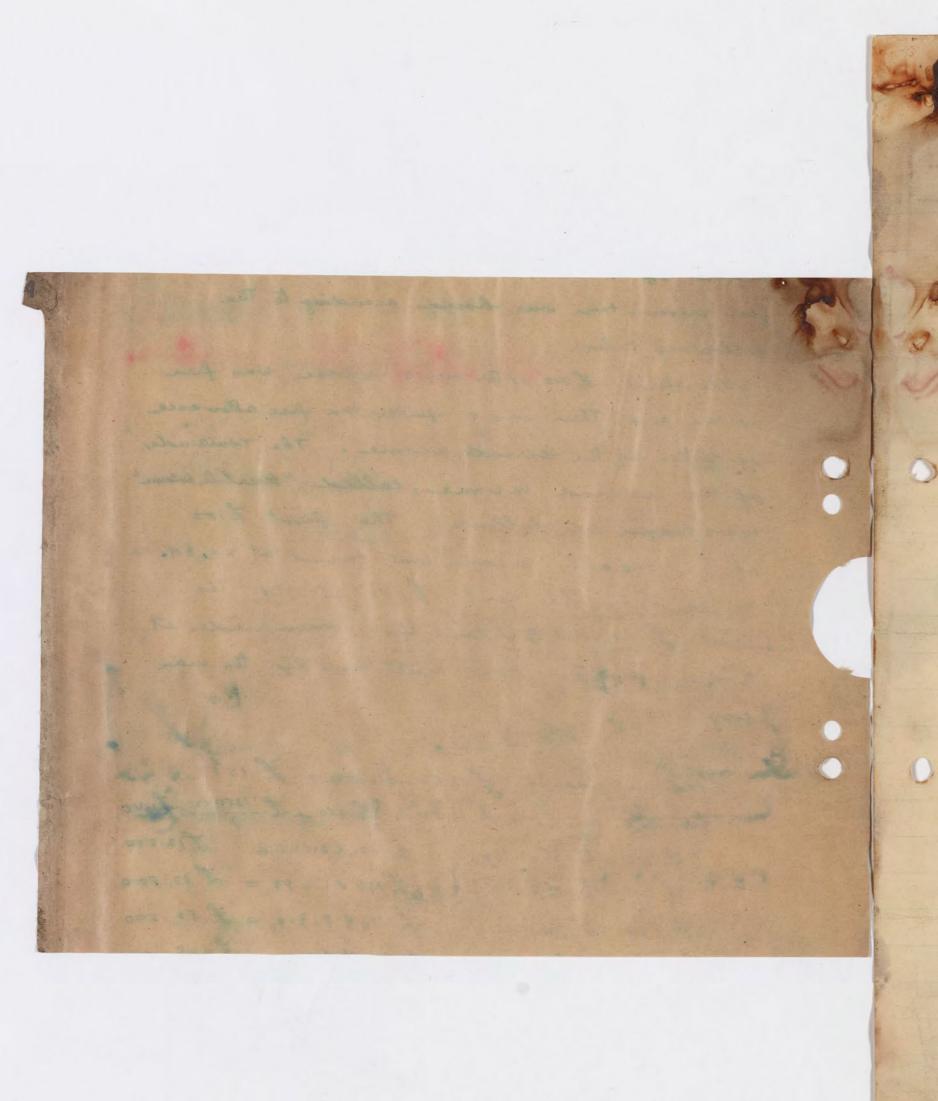
- + 1× - W 184 -HE HEVEL - I - 1 - 1 - 1 YOUN - X to the an and the first 2 67 5.005 101 = 5,39 82 1 5 4 have mint 0, 0003 Linoison. W. socal 212 p. 2 ... 20,0 pale V(103) + (4.00) 5 (29 40003 = 3. 01 - 1 1 Man. = T. 3429 6000.0 = 200.600 1880 E = 1002000 5 - 3 log 0.03 - 5. Mar 21 - Jen - 7. 858.4 = 2.4371 60.00 7 848 44 00.490 - 0.60% 1 100 11 X 5 19244. I T. 85888 . X = 0.30 51 celen = (D- & the state a sale i the storage and 3" 2" a K=37+3 makers · ind E J=K " le= fe 3. (2) 6= 15 ton = 2+ 33 d = 5 + 3325 = 5 00 (1-13 + 1 2 = 3 (4+0) = 200 (5+200) = 505 x50 = 25250 0 Amere $[-\frac{\pi}{2}]_{x} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} = \frac{1}{2} \frac{1}{$ Sing = 2 = 1- 2 = 1 = 2 = 1 = 53 Sing. It's a Visio 4. X-3X+2- 4 i y=x-3x+1 i y= + x2-4x Nor K at togene of analy touched in the a la substant of x 2 2x A amanut to sale and 1- m + 1 - 1

NK INY SCHOOL INTERMEDIATE & PRIMARY Baghdad Telephone No. 91693 Date..... 3 = 3 Sino 60° 3× 0.8660 = 25980 = 0.472.36 . there its height AD = x J3 y = x v3 sie 60° = x v3 . V3 = 3 x Q = 48 36 2 48 35 Ans.

رقم التلفون ٩١٦٩٣ mal Litans . in Algebra Cours H= 2 cabo, 2. AC= 4+ y= 4+ 3 cos 60° - Itois tanox = 8 = 2 Sin 60° in term of = 3/3 4+ 3 = 3/3 3/3 = 3/3 = 3/2/732 5.196 = 0.472.36 PL : x = 25 17 : B = 90 - X = 64 43 Bearing of Bytan 1 the x = Sind : X = 3 = 32 = 32 = 3 x 0.3660 = = 2.5980 = 6.0828 in (20) Let each side of the equilatival triangle = 2 % ,

Exan : Loplan C. t. 44.30+360 -1 4 200 they broke = AC BESCOCO 13 35 and a starr - 5. 19 - 6. 472.36 M in the x = x lange saider = 100 - 0 - 21034 - 9 = 90- X seening of the A they Sie 43 to a to paint a good 1 - - = 252 (00° = 3 x 025600 = 2.5980 = 600828 - (2) ist cash with I he againstand him a , then its hight A # \$7.53 6.2500 0= 46 56 + 45 30 1





Illustrative Example following rules ! pay ? solution . £100 @ 20 6d £ 150 @ 50 £ 150 @ 7.0 Remainder (£640)

In the financial year 1954-55 a man had an carned income of £ 1350 and a further unearned micome of \$ 200 from investments. In That year income - tax was levied according to the The first \$ 210 of the man's income was free of tax and there was a further tax free allowance of = the of the earned income. The remainder of the earned in come, called "taxable iscome" was taxed as follows: The first \$100 of the taxable income was taxed at 23, 6d. in the £1, the next £150 at 55, the hent \$150 at 7 s. and the remainder at

9 S. in the L. How much tax did the man

Total income = £1350 \$200 = £ 1550, Taxable income = £ 1550 - S\$ 210 + £ 1350×2 = £1040 £100 × 0.125 = £12.500 Z150 × 0.250 = Z 37.500 £ 150× 0.350 = £ 52.500 £640×0.450 = £288.000 Tatal tan = £ 390, 500 or \$390 102 P.T. D.

B.V. - OLL R. V. X 2750 agon of the House Value Kaleable eri'le the same in the \$1 remanne proveded be rate Subject : Arithmetic & Trigonometry Old tax (Rates) Class : 4th Year Secondary (2) Q 91 10 02 = SZ107 = 0200E (9) Taked rado = # 3000 × 0.8= 224,000 yards. (0) formally saled at \$32 education. value of a house while we (1) ought to the the new rateable rateable value of all property, what the entror \$ 3750 by willowand the the rate withok at 16 x lout to get (c) If we town decident to bave Serverue unchanged. to be uneased if the total rated where much will the rate in the \$ have an entron \$ 3750 heret year, by how (4) If the town estimates that it well need sate Coursed is 160 in the 7. How much does the town receive in a year if the 2.(a) The total radiable radius of a town is 230,000.

A city council requires an annual rate of 16s. 4d. in the £ of rateable. value. Out of each 16s. 4d. received the sum of 5s. 7.3d. is spent on

- £ 13 1s. 4d. half-yearly in rates ?

towards the education of each child ? (Take a year to be 52 weeks.)

4. A man invests £ 30,155, partly in 35% stock at 86 and the rest in 45% stock at 99. He divides the money so as to obtain the same income from each stock. Find the total income. 1290

5. Find, correct to three significant figures, the weight in pounds of a cylindrical iron pipe 10 ft. long, whose outer diameter is 1 ft. 6 in. and inner diameter lft. 4 in., given that 1 cu. ft. of iron weights 494 1b. (Take T as 3.142.)

If the inner diameter is increased to 1 ft. 5 in., the outer diameter and the length remaining unaltered, find the ratio of the new weight to the old.

SART

tas

SHAMASH SECONDARY SCHOOL

FINAL EXAM. MAY 1964.

Date : Time : 8:00 - 10:30 a.m.

30- 1-232

Answer All Questions .

1. Two lighthouses A and B are 5 miles apart, B being due east of A. A ship at P is due north of A, and on a bearing 322° (N.58°W.) from B. The ship then sails in a direction O56° (N.56° E.) to a position Q which is due north of B. Calculate FQ, BQ, and the bearing of Q from A. PQ = 6 . 081 MI. BQ= 9.7791

2. The elevation of a spire from a point A due N. of it is 28°, and from a point B due E. of it 18°. Find the height of the spire if AB is 100

27.7 ydo

What is the rateable value of a house, the holder of which pays #37-

(ii) If this householder has two children, both attending the council's school, what sum, to the nearest _ d., is he contributing per week

10

REPRESENCES OF THE PARTICULE

BQ= 5 cf 58°+ BL cot 38

BRANASH (STRONDARY MARANA WERNE SOR SPRING TO A : within : THIN I STOD - LOISO ALM. Anner All Questions 6) the inguinantes a and B are 5 miles spart, B being due east of A. A ship at P is due north of A. and on a bearing 522° (3.55°W.) from B. The ship than solis in a direction Osp² (8.55° B.) to a position Q which is due north of B. Oslauinter FQ. A. and the bearing of Q from A. Parker Borner Born - Parga 3 m - 102 H The eleveries of a spire from a paint A due h. of it is 28°, and from a paint b due h. of it is 28°, and from a tin to the retestie value of a house, the house of mi ille in the half-your at a strong all all a THE PARTY PA enterson of their child ? (This a year to be of years 15-8 a 211 a so so the movel inter a stock as as and the rest in the alc JP GI HE A LAND IN SHALL AND THE STORE ob NI

: instulat 3) (i) Yearly rates = (\$13 is 4d) X2 = 726 22 80 Ratello Rateable value of the House = \$26 25 8d 165 4d = 522 2/3 $= \frac{1568}{49} = = \frac{1568}{1} = \frac{1568}{1}$ (Z13 10 40) 50 7.30 <u>3136 × 67.3</u> = 16×67.3 196 = 1076.8 d/year 1076.8 = 20.7 cl 52 or 11 8.7 d per week per child

R. V = 32 × 27,750 24,000 737 ms. 0. . × _ O (1) 108 4 + 0 = = = = 18 22 22 = 0 0 to to add 22 04 (213 10 4d) 50 7.3d 3136 × 67.3 -- 161673, 4 8.7.9 per week por cheld

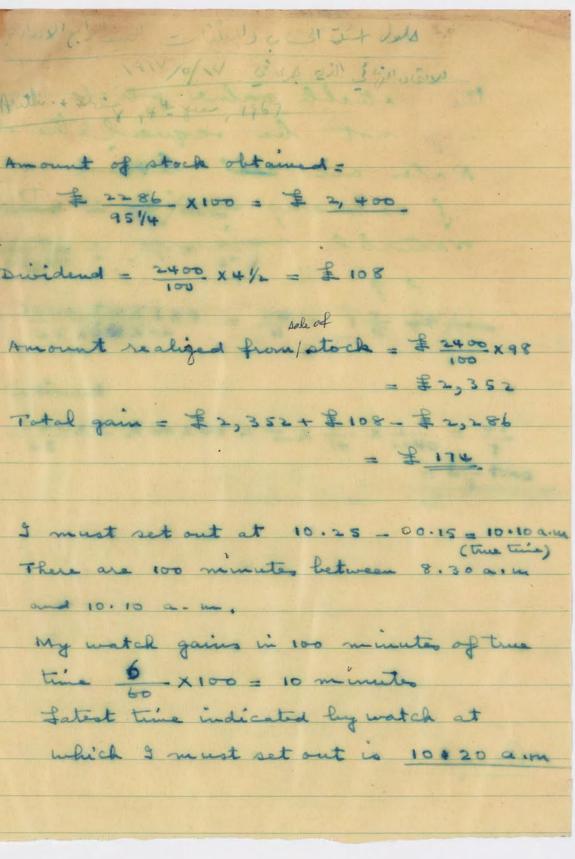
stence Taxation . (a) Income tan vertais (b) Rates = tan on retable real property "willer's (a) Jucome tor Income tan is levered in accordance with ascending scale (as we and) ". e. the rate of tax increases with higher mane Earned income - Income as a resulting from one's toil (bes' i tei) e.g. salanos Unearned income - Income from deposito, shares etc. In the U.K income tax is cable leved at the rate of so many shellings in the £ e.g. 10 s 6d of £10f meme. Total manne = Total earnings Taxable income = Total income = tare_ free allowance (b) Rates Rates - Sterl Since Rent - - 15 XI Rateable value - assessed value sit liere

The rates are collected on

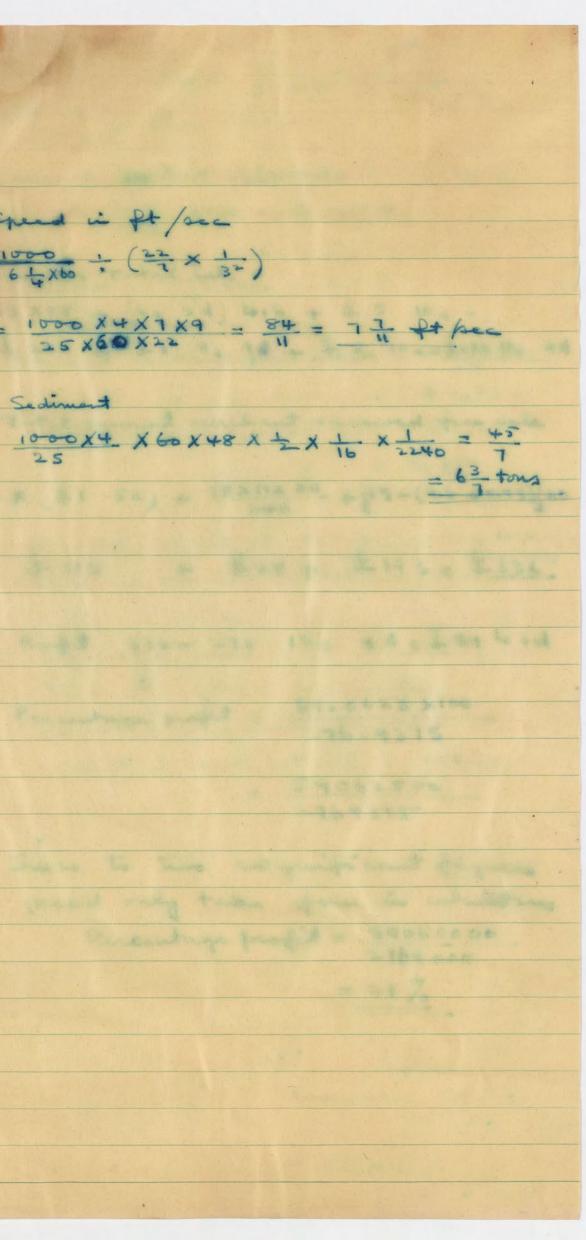
the vateable value. which way or may not be requal to the reat, Rates are at leved on the basis of so many shellings in the £1 of rateable value e.g the rate of a housef. is 55 in the £ If the rateable value is \$ 100, the rates are disage & - south \$ 25; & = and hat The rates may sometimes exceed the rateable value, Reason; the assessment was made many years ago when rents were low. Justead of making reassessment, it is sometimes decided to raise the rate or the tan per £1. We thus find in certain boroughs the rate is 25's or more in the £. Remip rate _ a rate of 1 d in the Z' of rateable value, at the lat (a) Tan Rest - Lett - Rate and a marked - A accorded and be The rates are tothe but on

Author and the state of the sta Amount of stock obtained = € 2286 ×100 = € 3,400 951/4 Dividend = 2400 × 4/2 = \$ 108 (6) and 10.10 a. m. time 0 × 100 = 10 minutes

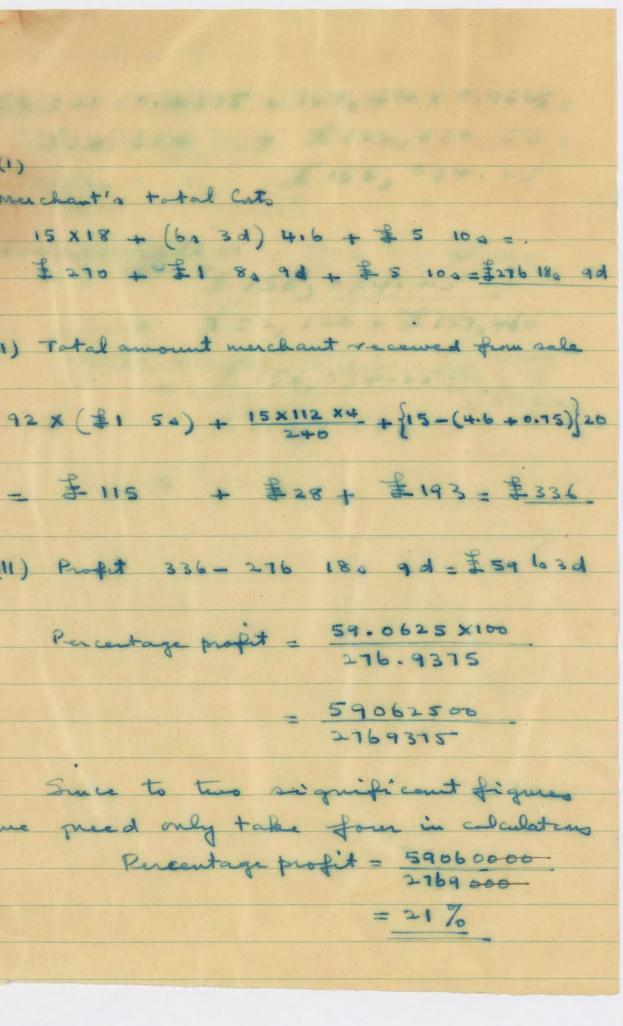
 \cup



a her might a derekopile terres and (200 (a) + mill the in brance Spend in ft /sec 1000 : (22 × 1 64 × 100 ; (-7 × 32) = 1000 X4X7X9 = 84 = 77 Pt pec 20x 00 pc to a standy mail maile a (b) Sediment \$25 cx 3 = themine (d) T COMPT A T X T TO SAY TO X PASSA 0 madride - 21.00 - BE. OF the two there to man & (the time) Flore and too memories butiness 8.30 and went for atransmo in 100 in monorate of trans strong of a cost x - 9 the father good material in a start to the 0 0 make all all as theme that there are to Asiaha . .

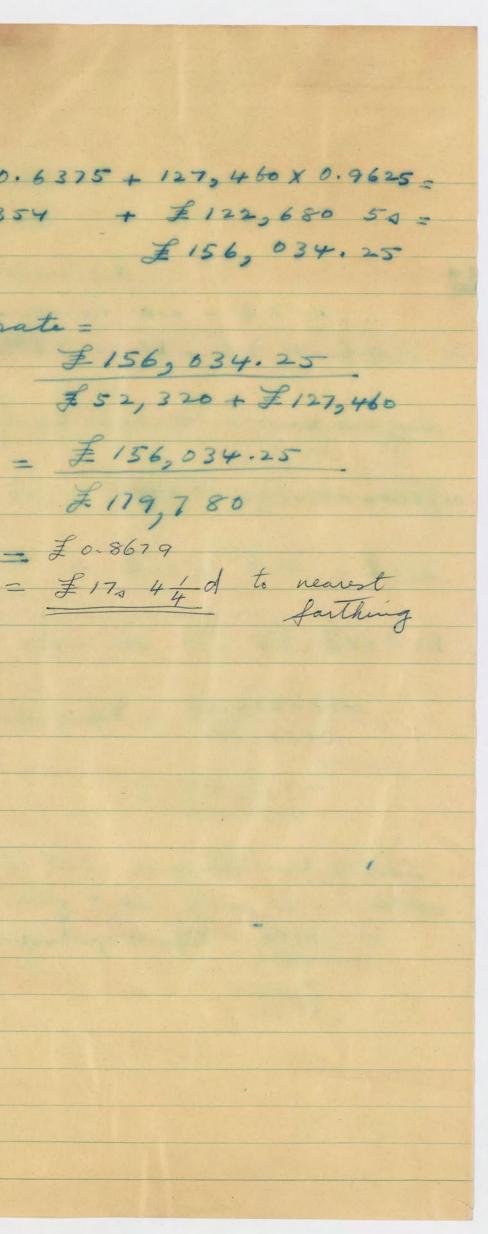


3 (1) Merchant's total Costs (1)-----("that that a " a "tank agen of 15 × 18 + (6, 3d) 4,6 + \$ 5 100 =. also mit housen turderen two lat T (B) (11) Total amount merchant received from sale 0 12 H (#1 50) + 19 + 11 × 11 + (+2 12) H SF 188 4 881 3 4 86 4 211 -6 -(11) Profit 336-276 180 gd= \$ 59 63d bed person by west dear adde theman (11) Percentage profit = antx zado. F2 Percentrage profest a 2858.482 0 24061200 -278+35-C many if there in ming in out at as with we need only take four in calculations we presed only take former in calculations Personnage profit = 59060000 Z 1-= =



22,320 (0, 6335" + 1278 460 × 0,9625 -133,384 + £122,680 59 = 5- 1420 6951 9 + 001 2 2 + did (t 2 ad) + 21 2 21 (1) Total income marchant recented from sale - I 156,034-25 es (sring did) - 2 1 + an sring 1 + (+2 1 +) + SF JEEL + ERIE + 2193 + 2011 A heat pet to be all dra - det the 9 (10) 001× 2420.82 - Kilperst sportmained 5158. 47.5 7758355 multiple time and granific and of a fund werkelicher is ring and taken being an Purchage profile = \$906000

52,320×0.6375 + 127,460×0.9625 \$33,354 Average rate = 7 179,7 80 = £ 0.8679



Shamash Secondary School Final Examination, May, 1967.

Subject: Arithmetic & Trigonometry Class: 4th Year Secondary.

2010.6375 + 127, 460 × 8.9625

354 + \$ 122,680 54

156,034.23

320 4 7 127 460

transaction.

- (b) I have a watch which gains six minutes in every true hour. I put the a.m. if it takes me 15 minutes to walk to the station ?
- 2. Following a storm, water is pumped out of a flooded area through a pipe as 6% gallons and π as 22 , calculate:
 - (a) the speed in ft. per sec. at which the water is passing through the pipe.
 - (b) how many tons of sediment will be pumped out in two days if it is of water.
- 3. A merchant bought 15 tons of potatoes from a farmer at £18 per ton.
 - (a) He sold 4 ton 12 cwt of the potatoes in 1 cwt bags at £1 5s. per in this way was 6s. 3d. per ton.
 - (b) He sold 15 ewt retail at 4d. per 1b for which he incurred additional labour costs of £5 10s.
 - (c) He sold the remainder of the potatoes in bulk at £20 per ton. Calculate:
 - (i) the merchant's total costs, including the initial cost of additional labour cost for the retail sales.
 - (ii) the total amount the merchant received from his sales.
 - (iii) the merchant's profit calculated as a percentage, correct to 2 significant figures, of his total costs.
- 4. A borough is divided into two districts whose rateable values are respectively £52,320 and £127,460. The rate in the first district is 12s. 9d. in the £, and in the second district it is 19s. 3d. in the £. Find the average rate for the whole borough to the nearest farthing.

Date: 17/5/1967 Time: 8:00 - 10:30 a.m.

Answer five questions which must include questions 2 & 5.

(a) How much stock is obtained by investing £2,286 in a 4½ per cent stock at 9514? After receiving the first annual dividend on this stock, it is immediately resold at 98. Calculate the total gain on the

watch right at 8.30 a.m. What is the latest time indicated by the watch at which I must set out to catch a train which leaves at 10.25

of 8 in. diameter at the rate of 1,000 gallons per minute. Taking 1 cu.ft.

known that the flood water contains ½ oz. of sediment in every eu.ft.

bag. The additional cost to the merchant in selling the potatoes

the potatoes, cost of selling the potatoes in bags, and

(cont'd.) ..

Arith. & Trig. 4th Year Secondary.

- (i) the length of BC,
- mid-point of BC.
- B is (N. 38E.). Calculate:

6.

- (b) the distance AB.
- (c) the bearing of P from C.

in the second of 12-9 90101 - 10010 - 10010 · bette stage + . ? the state on the state

S anatteoup abuilent Sain Footh Thistone guest and the second and the second second second second second

the first and the state of interest and the formal at the form of the state of the

ternen viele in alle billing als afmätter ift beine fele hälle i falle i der såle sende viser affet i billing als afmätter i bie langes til en salessen og andere sende i sende i biele sol i to ooten a trata salesler i en sole sole firte takes po is atagtes to sale to the section.

2. Following entotes, water is putned out of a flooded tree through a pipe

the second second as a second of the second second

al' fa fit and the bro haquely of the falles of the distance of the distance (a)

see 188 18 und sende the free mooreden bir to the stand a bras and the

(b) he sold to dat result is ad not to teribul the to the Labor to the second of the (a) Hermoni the compander of the potetone in bulk at the por ton.

(111) "the second is a state botton of the second of the s the 2 standing for and the particular incollectuals S and and the second second

17/5/67

ABC is a triangle with AB = AC = 100 ft. and the angle BAC is 70° . At A is a vertical pole AO = 80 ft. high. Calculate:

(ii) the angle of elevation of the top of the pole from B, (iii) the angle of elevation of the top of the pole from the

A, B and C are three points on a coastline which runs from north to south; B is south of A and C is 1000 yards south of B. A boat is moving in a straight line towards C and when it is at a point P which is 2000 yd. from A on a bearing of (N.60.E.) its bearing from

(a) the distance from P to the nearest point X on the coastline.

Subject: Arithmetic & Trigonometry Class: 4th Year Secondary.

transaction.

1 -2

· it toget in the

triangle with AE = AG = 100 ft. and the angle BAC is got

and the state of the state

the angle of elevation of the top of the solle from the

to coutb: B is south of A and G is 1000 yards south of B. 2 boat is coving is a straight line towards C. as then it is at a point T which is 2000 you from A do a bearing of thi00.E.) is bearing from

the distance AB.

. in the water of

a distance. For F to the contrast point X on the constitue.

. .

- as 6% gallons and π as 22 , calculate:
 - pipe.
 - of water.
- - in this way was 6s. 3d. per ton.
 - labour costs of £5 10s.
 - Calculate:
- farthing.

Shamash Secondary School Final Examination, May, 1967.

> Date: 17/5/1967 Time: 8:00 - 10:30 a.m.

> > R 3

Answer five questions which must include questions 2 & 5.

(a) How much stock is obtained by investing £2,286 in a 4½ per cent stock at 95%? After receiving the first annual dividend on this stock, it is immediately resold at 98. Calculate the total gain on the

(b) I have a watch which gains six minutes in every true hour. I put the watch right at 8.30 a.m. What is the latest time indicated by the watch at which I must set out to catch a train which leaves at 10.25 a.m. if it takes me 15 minutes to walk to the station ?

2. Following a storm, water is pumped out of a flooded area through a pipe of 8 in. diameter at the rate of 1,000 gallons per minute. Taking 1 cu.ft.

(a) the speed in ft. per sec. at which the water is passing through the

(b) how many tons of sediment will be pumped out in two days if it is known that the flood water contains 1/2 oz. of sediment in every eu.ft.

3. A merchant bought 15 tons of potatoes from a farmer at £18 per ton.

(a) He sold 4 ton 12 cwt of the potatoes in 1 cwt bags at £1 5s. per bag. The additional cost to the merchant in selling the potatoes

(b) He sold 15 cwt retail at 4d. per 1b for which he incurred additional

(c) He sold the remainder of the potatoes in bulk at £20 per ton.

(i) the merchant's total costs, including the initial cost of the potatoes, cost of selling the potatoes in bags, and additional labour cost for the retail sales.

(ii) the total amount the merchant received from his sales.

(iii) the merchant's profit calculated as a percentage, correct to 2 significant figures, of his total costs.

4. A borough is divided into two districts whose rateable values are respectively £52,320 and £127,460. The rate in the first district is 12s. 9d. in the £, and in the second district it is 19s. 3d. in the £. Find the average rate for the whole borough to the nearest

(cont'd.p.2) ..

(cont'd.) ...

Arith. & Trig. 4th Year Secondary.

ABC is a triangle with AB = AC = 100 ft. and the angle BAC is 70° . At A is a vertical pole AO = 80 ft. high. Calculate:

- (i) the length of BC,
- mid-point of BC.
- B is (N.38E.). Calculate:

6.

0

- (b) the distance AB.
- (c) the bearing of P from C.

1 -

There Brown in the Mary . There the addition water and the state of the

vilanona kul i piteminus sepatde s itobução intinues Times dred - 10:30 m. W.

interest live successione while back include questions 2 the

Those a vater wordt alling at statics in overs true hele. This work and a second true hele. in a li third an in minutes to wak torthe station?

2. Following a store, water is pumped out of a flooded area through sitting a bit which is the pumped of 0.000 gallons bit disting t which the state of the pumped area for state to the pumped of the pumped of

the speed in ft. per see, at which the value to possing through the 14 B (...)

5. A merchant bought 15 tane of petatoes from a farmer at 518 yer ton. b b bec. 2014 4 ton 12 out of the petatoes in 1 out base in 51 50. per bec. 2014 additional cost to the berekent in solicity we work out the tota way waid to the per ten. Den kan haung fin

(b) No sold "5" awt retail at 44. per 10 for which he inquired additional State and

(a) He sold the remainder of the pointeen in bulk at \$20 per ten.

(1) the merchant's total course instituting the initial cost of the point initial cost of initial point on the initial of the rest of the initial cost of the initial point of the rest of the initial cost of the merchant restrict the state (ii) the total forest in the merchant restrict the state (iii) the cost of the merchant cost of priority of the initial cost of the in

berguish as divisit into two discription bond of an are

17/5/67

(ii) the angle of elevation of the top of the pole from B, (iii) the angle of elevation of the top of the pole from the

A, B and C are three points on a coastline which runs from north to south; B is south of A and C is 1000 yards south of B. A boat is moving in a straight line towards C and when it is at a point P which is 2000 yd. from A on a bearing of (N.60.E.) its bearing from

(a) the distance from P to the nearest point X on the coastline.

Shamash Secondary School Final Examination, May, 1967.

Subject: Arithmetic & Trigonometry Class: 4th Year Secondary.

- transaction.
- as 6¼ gallons and π as 22 , calculate:
 - pipe.
 - of water.
- - in this way was 6s. 3d. per ton.
 - labour costs of £5 10s.
 - Calculate:
- farthing.

Date: 17/5/1967 Time: 8:00 - 10:30 a.m.

Answer five questions which must include questions 2 & 5.

(a) How much stock is obtained by investing £2,286 in a 41/2 per cent stock at 95%? After receiving the first annual dividend on this stock, it is immediately resold at 98. Calculate the total gain on the

(b) I have a watch which gains six minutes in every true hour. I put the watch right at 8.30 a.m. What is the latest time indicated by the watch at which I must set out to catch a train which leaves at 10,25 a.m. if it takes me 15 minutes to walk to the station ?

2. Following a storm, water is pumped out of a flooded area through a pipe of 8 in. diameter at the rate of 1,000 gallons per minute. Taking 1 cu.ft.

(a) the speed in ft. per sec. at which the water is passing through the

(b) how many tons of sediment will be pumped out in two days if it is known that the flood water contains 1/2 oz. of sediment in every eu.ft.

3. A merchant bought 15 tons of potatoes from a farmer at £18 per ton.

(a) He sold 4 ton 12 cwt of the potatoes in 1 cwt bags at £1 5s. per bag. The additional cost to the merchant in selling the potatoes

(b) He sold 15 ewt retail at 4d. per 1b for which he incurred additional

(c) He sold the remainder of the potatoes in bulk at £20 per ton.

(i) the merchant's total costs, including the initial cost of the potatoes, cost of selling the potatoes in bags, and additional labour cost for the retail sales.

(ii) the total amount the merchant received from his sales.

(iii) the merchant's profit calculated as a percentage, correct to 2 significant figures, of his total costs.

4. A borough is divided into two districts whose rateable values are respectively £52,320 and £127,460. The rate in the first district is 12s. 9d. in the £, and in the second district it is 19s. 3d. in the £. Find the average rate for the whole borough to the nearest

(cont'd.p.2) ..

(cont'd.) ...

Arith. & Trig. 4th Year Secondary.

ABC is a triangle with AB = AC = 100 ft. and the angle BAC is 70° . At A is a vertical pole AO = 80 ft. high. Calculate:

- (i) the length of BC,
- mid-point of BC.
- B is (N.38E.). Calculate:

6.

- (b) the distance AB.
- (c) the bearing of P from C.

The Contract of Par Lora At

and the sets a trade of

1 二丁二丁二丁四丁二二丁三四丁二丁

5. 41 45

1 2 2 7 Lo 19 77

South States Steepingers Scioo All stall and putters i larger

and among inter the state of the state of the an older 1949, 1959 and

S angestenne obulant, setter, delide substande over

(a) I have a watch which which withoutes is every true bow. I put the which might at 8.30 have, which is the latest i de thinked the match at which I must not out to catch a which which to be to 25 and if it betos me'ly simultor to wait to the station f . .

2. following a storm ishter is pusped out of a flooded area through a pipe of 6 is a state of the cete of \$1000 collons of a ladee. Texing 1 cults. as 6 culls, aldige as 22 ; calculater

(a) the speed in The personal-altabethe the water is passing through the

(b) now minny tone-of wedthen t while be plynood ant in two days if it is in the book with the in the second with the second water constituted a project of second with the stary sufficient of water.

total and the second to tenerof potetoes from a ferrer at 618 per ton.

(a) He wild A tor 12 control the petatoon in 1 out bace at 27 See per boy to the edditional cost testing arrowing in setting the potatoes in this way way for See per ton.

Ho sold 15 set intest at 44. gen 15 for which as incurred additioned

(1) the merchant a total creater leginging the initial cost of the polyhour cost of selicing the prestore in here, and merciant total to the rotal coles.

(11) the total enount the service troative from his sales.
 (11) the merchant's profit calculated as a percentage, correct
 to 2 significant fighters of his fetel conth.

As a parametric of videod in briters of atalatic should retentine values are responsively and parametrics, where should in the the time the district is "the is in the second in the second district it is the normal the bound is the second in the second should be be and to be and and the bound is the second interview the should be becauge to the normal

(Sequet Deck Deck Print to be

the state and the second of the 199

17/5/67

(ii) the angle of elevation of the top of the pole from B, (iii) the angle of elevation of the top of the pole from the

A, B and C are three points on a coastline which runs from north to south; B is south of A and C is 1000 yards south of B. A boat is moving in a straight line towards C and when it is at a point P which is 2000 yd. from A on a bearing of (N.60.E.) its bearing from

(a) the distance from P to the nearest point X on the coastline.

26.384

The second second a firm

二、 「御 王王」 一 王子田 化二分子公子 等等。百年前岁 相。

30

1961 the company francis and the 1961

b dl m w.o d = 000,800

AF ort is proved a second

and the second the second the second the as

Martingan Standard (Margaret Martin States Colours and

(11) the angle of elevation of the top of the pole from B. (11) the angle of elevation of the top driving pole from the

ad G are three points on a countDiac Mileh ruce from marth th: Bis swith of A and C is 1000 yords couth of D. A boat

is porting in a sisting in line towards C and when it is at a point P which in 2000 vd from A on a bearing of (N.60.E.) its bearing from F in (h. 36E.). Colouinte:

(a) the distance from F to the nearest wint is at the coastions.

the particular commence and a flagment in the second secon

----- the states a second state

Algand at made (201 balls a second

ard an<u>ix all</u> a second (10) and and with a <u>second</u> (10) and and with a <u>second</u> (10) a <u>second</u> (10) a Sit all a second (10) a <u>second</u> (10) Mid-year Sesan ., Jan, 29th 1867 4th year.

24/1

21

24623

9

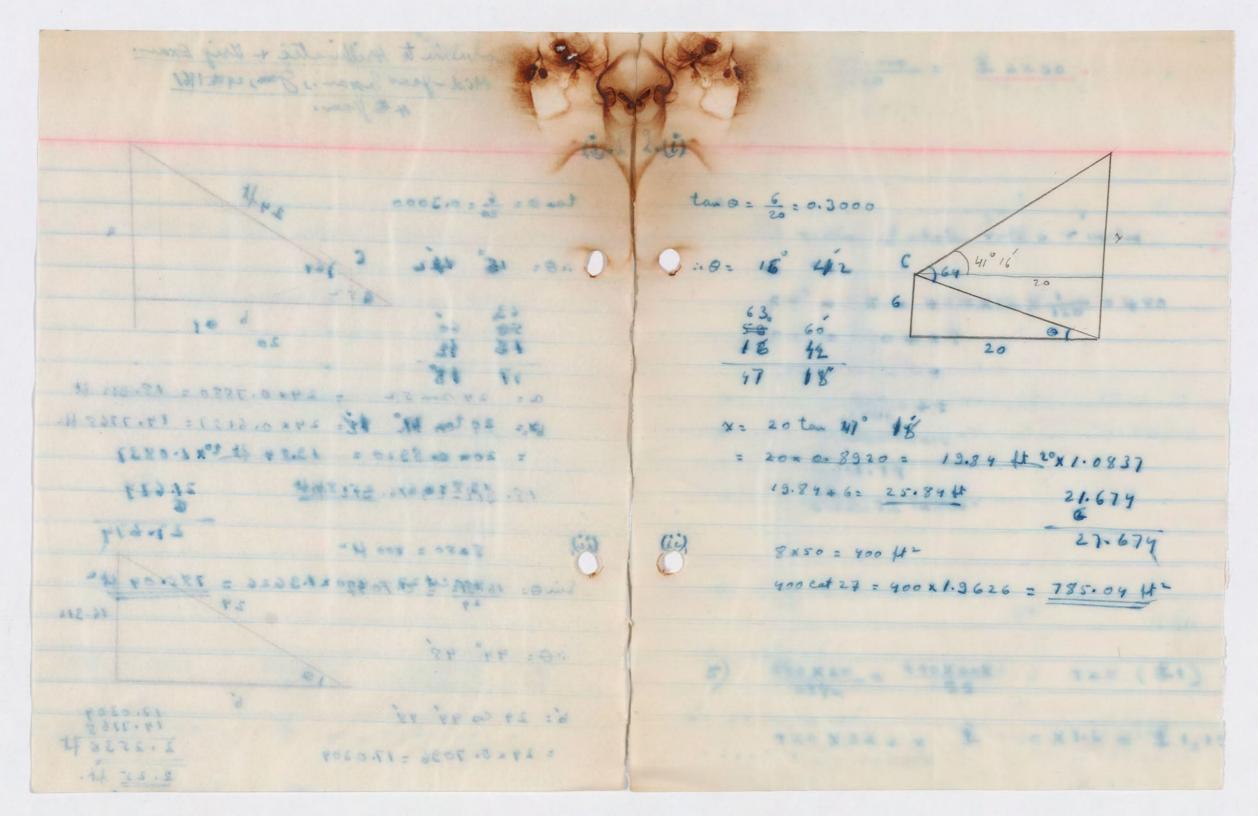
 $a = 24 \times 0.7880 = 18.912$ lt $b = 24 \cos 22 = 24 \times 0.6157 = 14.7768$ H.

18. 912-2 = 16. 912 H

Tight La

152

 $\begin{array}{c}
\sum_{\substack{1 \leq 1 \leq 21 \\ 29}} = 0.7097 \\
\sum_{\substack{29}} \\ 29 \\
\sum_{\substack{29}} \\ 29 \\
16.311 \\
16.311 \\
16.311 \\
16.311 \\
16.311 \\
16.311 \\
16.311 \\
16.311 \\
16.311 \\
17.0307 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7168 \\
19.7568 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.755 \\
19.$



in the Mid- fleer stars. we unight 4th ferr, February Jan, 29th 1967 (a) <u>+32,000</u> = £ 0.8 or 540,000 168 (b) \$63×0.8= \$50.4 or \$50 82. 0226 - - ----540,000 = 主 2250 . CORGOS & SOMAT putions or a theory what Let radius of whole roll = r maches 525 34 20% W R L S OF # = " BAT BATA BA BY Tr - 9 TT = 4800 X12 X 120 = 480 10 7 + + 0 + 0 = = = = = = = = 7 1 + 2 + 30 + 9 7 12 ~ = 450 + 9 17 58 = 480 +9 Star as the All and the = 152:19+9 * SLEG-1X" IL real profit is not a = 161.79 10.912 5 - 2 + 1 9.62 41942 ~ = 12.72 inches. 1-5-5-55 THE LOUNT AND HARCHER = HARKER = 735104 4th (12) DAT - MOAKOPF - DAKATP 990×20 = 990×20×2 = 720 (\$1) shares 5) 100 HI = ddxo. I presky our 720 × 32 5 = \$ 720 × 1.6 = \$ 1,152 he realized from the sale 1152×20 = 2560 (104) shares he bought Change of income: tucome from (\$1) shares = - 120 × 10 = \$72 " " (100) = $\frac{2560}{100} \times \frac{5}{100} = \frac{1}{2}64$ Income decreased by \$12-\$64= \$8

· alt a coop track at and of 1st years the property a the making \$280 of and a a this profit a 1220 2 450 1 10 and to be anothing of and give the section of for the the the and of and you to property the said and a forgers

1291 The count present betard

At the end of 3rd year 13's capetant in \$ 5, 244 + \$ 764,75 \$ 6003.75 - use a what well a trushe or it food 150 -

> 38 + = - 1 × SIX 008 + = TI = " × 7 measure with P 4 2 2 - 1 Y F 4 - 3101.2 proping a second to -

> > pr. dat = - meline ST - = =

> > > (2

6000: 4000 = 3:2. 6) At end of 1st year B's profit = 1400 × 2 = \$560 At beginning of 2nd year B's capital = \$4,560 At end " " " B's profit = 1584 × 4,560 = \$ 684 At beginning of 3rd year B's capital = \$4560 + \$684=\$5,244 At the end of 3rd year B's profit = (1639 150) 5,244 = \$ 764.75 At the end of 3rd year B's capital is 1 5, 244 + \$ 764.75= \$ 6008.75 or \$6008 150 -

and (12) ast = XOLXOFF - OLXOFF

provide at stigt # add to at a sex our

tipent it made (101) adde = 22x2211

in any man in att - "x all - and (it' and anot

+3 = = = × - 2025 = × (1.11) sat and with and have an and

Subject: Arith. & Trig. Class: 4th Year Secondary. Kuszi - tig-u capital a I 45 to 4 I 689 year R's project = these maj 5 and - & regists 4141 5 4 31 and of 33d year 33's capital in 25, 244 + £ 764. 15= \$ 6008.75 ~ \$6008 150 -Calculate: expenditure. (c) The amount produced by a penny rate. of the whole roll to 1 in. of his annual income ?

Shamash Secondary School Mid-Year Exam. January, 1967

بلون عزرا مومه دار

Date: Jan. 29,1967 Time: 8:30 - 10:30 a.m.

Answer five questions which must include question 2.

A ladder, 24 ft. long, makes an angle of 52° with the ground and leans against a vertical wall. If the top of the ladder slips down 2 ft., how far will the foot of the ladder move ?

(i) The point C is 6 ft. above level ground and 20 ft. measured horizontally from a vertical pole AB where B is at ground level. If the angle ACB = 64° , calculate the length of AB.

(ii) A vertical wall of length 50 ft. and height 8 ft. runs due N and S. Find the area of the shadow of the wall cast on level ground by the sun shining from the W at an elevation of 27°.

3. The total rateable value of a town is £540,000 and it is estimated that the necessary expenditure for 1959 will amount to £432,000.

(a) The rate in the 2 which must be charged to meet the 1959

(b) The rates to be paid on a house whose rateable value is £63.

4. A length of 4800 ft. of paper is wrapped on a wooden cylinder of radius 3 in.; the thickness of the paper is $\frac{1}{120}$ in. Find the radius of the whole roll to 1 in.

5. A man invested £990 in (£1) shares, paying 10%, at 27s. 6d.; he sold the shares at 32s. and invested the proceeds in (10s.) shares, paying 5%, at 9s. How many (10s.) shares did he buy and what was the change

6. Two partners A, B started with eapitals of £6000, £4000 respectively. The profits at the end of each year are divided in proportion to their capitals invested in the business at the beginning of the year. A withdrew his profits at the end of each year, while B left his in the business. The profits for the first 3 years were £1400, £1584, £1639 15s. respectively. What was B's capital at the end of 3 years?

the amounted in realide in F. Let so be the amounted invested in F. (1) (1) . any of support ip part (1) still stock purchased a I warner 2=7 Stock purchased = \$ xx100 - hannes & man (11) it's stock purchased = \$ (and - 900). 31 % stock purchased = \$ (100 x - 900). the success principal the same Since the income remained the same at a plan a stars which we have a son a son which and the shine in the 100 x × 23/4 = (100 x - 900) 32 95 × 100 = (95 - 900) 32 TTANT - XP - T (238 - LINE) - I - XH - DA - 1. STATE FXIELS With the second states of the second is the second states in the second states in the second states and the se minite and a sparse (a). The set is the set take to much be charged to many the 1959 + accellers & d afer. AUT PXIFEIX 1 - C X = +3 C 10 - days . TRENT AN A GRETTERAN ATT OF · ++ =+ > 522=5 -5 x = 7×855 JOHXF = x ZI -1.5 x = 7 × 855 285 author of OPPET ____XZZET ____ 1140 their sugar 456 the to marsh Ele. 285 3990 ------Flow the count should would advance you

In tal of all more thing gradered which the to the the Between 4 p. m fuday and noon the following (i) area of subjace of sphere = patronthe lit Wednesday. There And days mond 1 (i) (i) Volume of sphere = 4/ mail and doot? The in the sealth to doubt the (ilig) = Arcat of curved surface of a const = it To b I The fast clock games 3×45 = 141/2 minutes 1 to be the the server of to serve to V . (VI) (IV) Volume of a cone = 1 to me to the male The stand with the start + 2 = 12/12 4 - (N) = Areal of trapezien = (a+b)h = 27 th most amount (b) -1 - Volutile of bar = 15" × 9" × 8" - cabie huches Defference betideen them = 14/2+ 12/12 (1) net volume (after allowing for 10% loss = 15×9×84 1 22 and Tor approved to all and 264 minutes 28 XF - JT Volume of a splice = 1/2 X 3.142 X 27 1 28 X 28 28 X 2 1.571 X9 cubic tuckes. = > Difference per day = 51/2 minutes # 1.53189 when patter. in all = od X SI Wt. of 68 spheres = 320 X68 X 1.511 X9 1 time again when the difference between them has become 12 hours or 12×60 = 720 min <u>-120 - 120X2 - 130 10 days.</u> 51/2 - 11 . aprob - 1058 = = X 25 F =-= 205 X11 X + 511 228×1= x 2.12 APP Ent studie 25 x 25 4 4 4 19 350 + The fast clock fame 3 munites per day aprels - 051 in aturner - 05185 12 12 11 + 12 205 Al trail gain 3×130 minutes in 130 10 days 205 Thuman - SP & to = 392 % minutes 3485 - the former and 3 to the manual of the = 6 hours and 32 % minutes 3485 24395 beer much blow had traver it -well, 7425 Now the correct clock would show read 2 8 4 E after 130 1 - days of correct time after 130 19 days of correct time 1 tran 4 Alexin p. un 1 hr 49tim p.u. 5474.935 pour infect lien deal that all'12 5474.935 The fast clock will threfore read 1 Rr 49 1 mm. + 6 hours 32 8 min 1 the up the men of b thouse 32 the main 67 74 29 atum of 15 anot 8 = = 8 hours 21 g muntes p.m The slow clock will read the elt pass low doich which send ett same.

21 4 10d + 94 = 304 10d or 305 - 188 4 Cost per year = \$ 44 × 185 6×20 11 31 Average Cost per week = \$ 44 × 10 6 × 10 He has first in wethinking the hardway . b 1 2 d 1 # and and the sight and they ball them Income from investment = \$ 3300 × 2.5 = all at at the spice the tringen that = 14 to FIN & FIN (1) Garage rent = 7.5x52 = £ 19.5. with had and is in the sting time ? (b) ather will the de the line Total enpendeting = 1 \$126+ \$ 1905=1\$ 145.5 + 1. 231 2 4 ge there inches the stand 145.5- 182.5 = 1 5003 onet experientitue use again when the difference that ween . opub - 061 - - X 0 - 041 - 041 = \$675-\$63= \$45 The deale the series and have day 3X130 11 mounting in 130 11 day etherion pressor \$4 160 8 d = 392 Tommeter = 6 there is and 3 2 minutes Man the coursest clock would almost read after 130 10 days of anest time with the film prover have expected will theater tough all I the stiff mainer + & theman 22 + 1 structor - 1-1- mounts = w. q the alow which had not the

a time? what what that time be?

. . . .

Ene to has a see and has all The are two clocks, one of which gains & minutes, while the other loses 24 minutes each day. The are set sight at I at delach on Friday atternoon . What in the difference letericen the d river on The following Wednesday ? In how many days from the line they are net the on thit night will they both show Two hards mark anneal Turn clock are set night similar cousty at 12 main, are of which loves 6 sec In har, and the other gains 3 sec. in 50 min. (a) How long will it be before The minute hands are again in the same direction ? (b) what will then he the Time aver & P.m. by each clack ? (c) when will both clacks simultaneously He sources to a sil A A STAT THE T

2.1 2 50 1 A 4 7 31 4 he with the state of & delace on trading attension in the fallow man Wednesday 3 E 14 C. T. He marine

SHAMASH SECONDARY SCHOOL

Final Examination. May 1966

Subject: Arithmetic & Trigonometry Class : 4th Year Secondary

Attempt five questions only including question (4).

- originally invest?
- 2. car at 7s 6d per week. Find how much per annum he saves by the change.
- assuming that it lost time uniformly. Note: (9 a.m. and 12 noon are correct time).
 - following stroke of the slower one?
- of the solid. (Give answer to 3 significant figures).
 - 4 significant figures).
- it take ?

Date: 18.5.1966 Time: 8:00-10:30 a.m.

1. A person, having bought a certain amount of $2\frac{39}{49}$ stock at 95, afterwards sold it, and with the proceeds bought 32% stock. He obtained £900 less stock than before, but his income was unchanged. How much money did he

(20 marks)

A house holder owns his house which has a rateable value of £44 on which the annual rates are charged at 21s 10d in the £1. He also has to pay an annual property tax at the rate of 9s in the £ on an assessment of £44. Calculate, correct to the nearest penny, the average cost per week of the total of these charges, taking a year as 52 weeks. He subsequently sells his house for £3300, which sum he invests at the rate of $2\frac{1}{2}$ per annum free of tax, and maves into a flat which he rents at £126 per annum. He has however to rent a garage for his

(20 marks)

3. (a) A watch was 5 minutes fast at 9 a.m. on Monday, and 10 minutes slow at 12 noon on the following Wednesday. Find when it was exactly right,

(10 marks)

(b) Two clocks sound the first stroke of 12 o'clock at the same instant; one clock allows an interval of 20 secs. between each stroke and the next, and the other allows 25 secs. How many strokes of the slower clock remain after the quicker one has finished striking, and what time will elapse between the 12th stroke of the quicker one and the

(10 marks).

4. (a) A solid consists of a hemisphere, radius 8 cm., joined to a cone of the same base-radius and height 6 cm., so that the plane surfaces coincide. Find (i) the volume, (ii) the total area of the surface

(10 marks)

(b) A sphere of radius 3 in. is filed down into the greatest possible cube; find the volume of the material removed. (Give answer to

(10 marks)

5. Find the difference between the perimeters of a regular pentagon and a regular hexagon, each of which has an area of 24 square inches. (20 marks)

6. In response to an S O S call from a ship at A, another ship at B, 175 miles due east of A, starts toward A at a speed of 12 miles per hour. At the same time a third ship at C, which is 186 miles from B in a direction bearing 30 15 west of north, also starts for A at a speed of 16 miles per hour. Which ship will reach A first, and how long will (20 mainks)

Subject: Arithmetic & Trigonometry Class : 4th Year Secondary Attempt five questions only including question (4). originally invest? 8 change. assuming that it lost time uniformly. Note: (9 a.m. and 12 noon are correct time).

to result because and of which has an average of 20 sound inches

wood man selin ST to beings a th & hymner strein of the sites out antin the the suise time a third side at C, shick Is' 186 miles from 2 in.a

4. (a) A solid consists of a hemisphere, radius 8 cm., joined to a cone of the same base-radius and height 6 cm., so that the plane surfaces coincide. Find (i) the volume, (ii) the total area of the surface of the solid. (Give answer to 3 significant figures).

(b) A sphere of radius 3 in. is filed down into the greatest possible cube: ind the volume of the material removed. (Give answer to 4 significant figures).

6. In response to an S O S call from a ship at A, another ship at B, 175 miles due east of A, starts toward A at a speed of 12 miles per hour. At the same time a third ship at C, which is 186 miles from B in a direction bearing \$2,15 west of north, also starts for A at a speed of 16 miles per hour. Which ship will reach A first, and how long will (20 marks) it take ?

SHALASH SECONDARY SCHOOL

Final Examination, May 1966

Date: 18.5.1966 Time: 8:00-10:30 a.m.

1. A person, having bought a certain amount of 23% stock at 95, afterwards sold it, and with the proceeds bought 32% stock. He obtained £900 less stock than before, but his income was unchanged. How much money did he

(20 marks)

2. A house holder owns his house which has a rateable value of £44 on which the annual rates are charged at 21s 10d in the £1. He also has to pay an annual property tax at the rate of 9s in the £ on an assessment of £44. Calculate, correct to the nearest penny, the average cost per week of the total of these charges, taking a year as 52 weeks. He subsequently sells his house for £3300, which sum he invests at the rate of 22% per annum free of tax, and moves into a flat which he rents at £126 per annum. He has however to rent a garage for his car at 7s 6d per week. Find how much per annum he saves by the

(20 marks)

3. (a) A watch was 5 minutes fast at 9 a.m. on Monday, and 10 minutes slow at 12 noon on the following Wednesday. Find when it was exactly right,

(10 marks)

(b) Two clocks sound the first stroke of 12 o'clock at the same instant; one clock allows an interval of 20 secs. between each stroke and the next, and the other allows 25 secs. How many strokes of the slower clock remain after the quicker one has finished striking, and what time will elapse between the 12th stroke of the quicker one and the following stroke of the slower one?

(10 marks)

(10 marks)

(10 marks)

5. Find the difference between the perimeters of a regular pentagon and a regular hexagon, each of which has an area of 24 square inches. (20 marks)

Final Examination, May 1966

Subject: Arithmetic & Trigonometry Class : 4th Year Secondary

Attempt five questions only including question (4).

1. A person, having bought a certain amount of 23% stock at 95, afterwards sold it, and with the proceeds bought 31% stock. He obtained £900 less stock than before, but his income was unchanged. How much money did he originally invest?

A house holder owns his house which has a rateable value of £44 on which the annual rates are charged at 21s 10d in the £1. He also has to pay an annual property tax at the rate of 9s in the £ on an assessment of £44. Calculate, correct to the nearest penny, the average cost per week of the total of these charges, taking a year as 52 weeks. He subsequently sells his house for £3300, which sum he invests at the rate of $2\frac{1}{2}$ per annum free of tax, and maves into a flat which he rents at £126 per annum. He has however to rent a garage for his car at 7s 6d per week. Find how much per annum he saves by the change.

- assuming that it lost time uniformly. Note: (9 a.m. and 12 noon are correct time).
- following stroke of the slower one?
- 4 significant figures).
- it take ?

Simon laris

and free of next, and anvan mito a line white another is had however to rank a grange for the, that not out per same he and by

ther was set of a, stread to a to a speed of 72 miles put hour

SHAMASH SECONDARY SCHOOL

Date: 18.5.1966 Time: 8:00-10:30 a.m.

(20 marks)

(20 marks)

3. (a) A watch was 5 minutes fast at 9 a.m. on Monday, and 10 minutes slow at 12 noon on the following Wednesday. Find when it was exactly right,

(10 marks)

(b) Two clocks sound the first stroke of 12 o'clock at the same instant; one clock allows an interval of 20 secs. between each stroke and the next. and the other allows 25 secs. How many strokes of the slower clock remain after the quicker one has finished striking, and what time will elapse between the 12th stroke of the quicker one and the

(10 marks)

4. (a) A solid consists of a hemisphere, radius 8 cm., joined to a cone of the same base-radius and height 6 cm., so that the plane surfaces coincide. Find (i) the volume, (ii) the total area of the surface of the solid. (Give answer to 3 significant Tigures).

(10 marks)

(b) A sphere of radius 3 in. is filed down into the greatest possible cube; find the volume of the material removed. (Give answer to

(10 marks)

5. Find the difference between the perimeters of a regular pentagon and a regular hexagon, each of which has an area of 24 square inches. (20 marks)

6. In response to an S O S call from a ship at A, another ship at B, 175 miles due east of A, starts toward A at a speed of 12 miles per hour. At the same time a third ship at C, which is 186 miles from B in a direction bearing 3 15 west of north, also starts for A at a speed c 16 miles per hour. Which ship will reach A first, and how long will (20 mauks)

Subject: Arithmetic & Trigonometry Class : 4th Year Secondary

Attempt five questions only including question (4).

- originally invest?
- change.
- assuming that it lost time uniformly. Note: (9 a.m. and 12 noon are correct time).
- following stroke of the slower one?
- - 4 significant figures).

 - it take ?

and property and anterpreter all tok an the life in alled not be allediate, any at the rate of 9n in the 2 on an essentiant whe total of these olarges, toking a point de 52 weaks. He arealy cells are house for \$5000, which as 52 weaks. He bis per same free of tax, and moves into a flat which ne a size por same, we has houser to reat a garage for his To 55 per seture. We has houser to reat a garage for his

willes due deal of A, starts boward & at a spend of 12 miles

SHAMASH SECONDARY SCHOOL

Final Examination, May 1966

Date: 18.5.1966 Time: 8:00-10:30 a.m.

1. A person, having bought a certain amount of $2\frac{3}{4}$ % stock at 95, afterwards sold it, and with the proceeds bought $3\frac{1}{2}$ % stock. He obtained £900 less stock than before, but his income was unchanged. How much money did he

(20 marks)

A house holder owns his house which has a rateable value of £44 on which the annual rates are charged at 21s 10d in the fl. He also has to pay an annual property tax at the rate of 9s in the £ on an assessment of £44. Calculate, correct to the nearest penny, the average cost per week of the total of these charges, taking a year as 52 weeks. He subsequently sells his house for £3300, which sum he invests at the rate of 21% per annum free of tax, and moves into a flat which he rents at fl26 per annum. He has however to rent a garage for his car at 7s 6d per week. Find how much per annum he saves by the

(20 marks)

Jer X 3. (a) A watch was 5 minutes fast at 9 a.m. on Monday, and 10 minutes slow at 12 noon on the following Wednesday. Find when it was exactly right, (10 marks)

> (b) Two clocks sound the first stroke of 12 o'clock at the same instant: one clock allows an interval of 20 secs. between each stroke and the next, and the other allows 25 secs. How many strokes of the slower clock remain after the quicker one has finished striking, and what time will elapse between the 12th stroke of the guicker one and the

> > (10 marks)

1. (a) A solid consists of a hemisphere, radius 8 cm., joined to a cone of the same base-radius and height 6 cm., so that the plane surfaces coincide. Find (i) the volume, (ii) the total area of the surface of the solid. (Give answer to 3 significant figures).

(10 marks)

(b) A sphere of radius 3 in. is filed down into the greatest possible cube; find the volume of the material removed. (Give answer to

(10 marks)

5. Find the difference between the perimeters of a regular pentagon and a regular hexagon, each of which has an area of 24 square inches. (20 marks)

6. In response to an S O S call from a ship at A, another ship at B, 175 miles due east of A, starts toward A at a speed of 12 miles per hour. At the same time a third ship at C, which is 186 miles from B in a direction bearing 30 15 west of north, also starts for A at a speed of 16 miles per hour. Which ship will reach A first, and how long will (20 marks)

Subject: Arithmetic Class : 4th Year, Scientific

Answer all questions:

1.

A dealer sells 2640 articles for £ 341 his profit being 24% of his outlay. Find the cost price of each article. If the cost price to the dealer increased by 8% and he does not change his selling price, find how many articles he must sell in order to obtain the same total profit as before ?

- 2.a) Compare the volume of the Moon with that of the Earth, if the tor is unity.
 - .41 lb. per cub. in. ? (To nearest 1 in.)
 - much per cent ?
 - culate:
 - zinc, 350 gm
 - nearest gm, 608gm
 - (c)

tite his house think ins a retantic value of 546 on whi abos are charged at 21s 10d in the 11. We also has to pay operate tex at the rate of 98. In the 2 on an andreaught of the, carrent to the neuront parmy, the average cool par could of the sources, taking a rear as 52 wants, in ceils ide mores for \$5500, which she invests at the reate at 2120 per arius. He has hoverer to rank a parage for his

(a) antatole tran 5 minutes test at 9 a.m. on Handay, and 10 electric stor abouding that it lost time uniformity.

nt a certain record, of 255 about at 96, afvenant proceeds boughts 355 avoor. Its of tained 1900 is bids income the unchanged. However, noney with

united the second

(b) a sphere of rodino 5 th. is filed som into bie peatost positile cuse: and the volume of the monthal romives. (Hys sharer to a significant () pres).

a regular hereason, each of algon has an area of 24 aquare inches. (20 marks

6. In response to an 5 0 8 mil, when a ship at A, enother abip at B, 172 At the same fine a third ship at C, which is 186 miles from \$120 " direction bearing 3" 15 west of north, else diarte for 1 and " speed (mittan 05) (m)

Shamash Secondary Mid-Year Exam. 1965-1966

Date: 1.2.1966 Time: 8:30 - 10:30

diameter of the former be to the diameter of the latter as 27 to 100. Give your answer in the form of a ratio whose denomina-

b) In order to increase the weight of a block of steel by 1 oz. a cyclindrical hole 1/4 in. in diameter, is drilled in the block, and the hole is then filled with lead. To what depth must the hole be drilled if steel weighs, 29 lb. per cub. in. and lead weighs

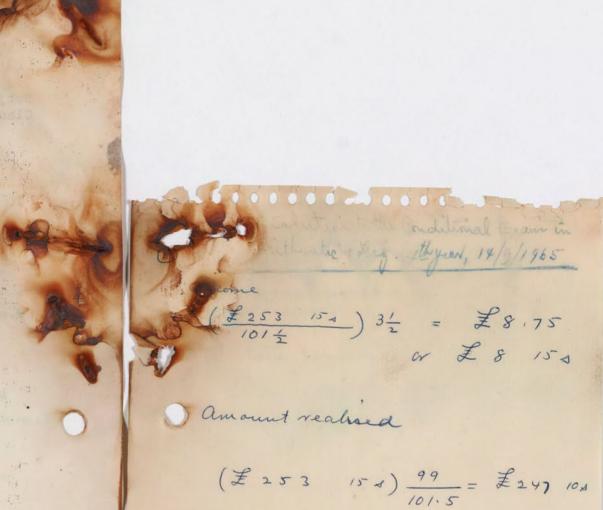
3. The rate in a certain town is 13s. 10d. in the £. If the rateable value is increased by 5% and the rate reduced by 6d. in the \pounds , will the income from rates be increased or decreased, and by how

4. Brass is made up of copper and zinc in the proportion 5:4 by volume. If lcc of copper weighs 8.8 gm and 1 cc of zinc weighs 7.1 gm cal-

(a) the weight of copper required to form brass with 50 cc of

(b) the weight of copper in 1 kilogram of brass correct to the

the volume of 1 kilogram of brass correct to the nearest cc. 124 CC. 7



)

0

 $\left(\frac{3}{2}\right)^3 = \left(\frac{3}{4}\right)^3 + \frac{3}{1} + x^3 \qquad x = vadus$ $\chi^{3} = \frac{27}{8} - \frac{27}{64} - 1$ $= \frac{2/6}{64} - \frac{27}{64} - \frac{64}{64}$ $=\frac{125}{64}$

 $\chi = \frac{5}{4}$ radues Dram! = 2 x = 10 = 2 1/2"

56312 1.2.1966 19416-1 8.30 - 10:30

ala to 647 anda i depende 124 a sea patro ada da chaqui china ani i angelena da sea i ta quilli ani i angelena di pag di i ta depende a angelena di pag di i

14 (AL 1997 - 2 4)

t

be drail and it stored weights and the problem is and ited weight weight abb. Sor. And it store it. Weight abb. Sor. And it. Weight abb. Sor. And

(a) the weight of copper required to form brase with 20 we of

the value of copies to 1 Milogram of Proce correct to the measured and the value of 1 Milogram of Press correct to the marcat co.

original position of ladder AA' =2 } Find A'B' later position BB'

103

 $A C = 24 \text{ Ain } 52^{\circ}$ = 24 × 0.7880 = 18.91 ft $A^{\circ}C = 18.91 - 2 = 16.91 \text{ ft}$ $Am0 = \frac{A^{\circ}C}{A^{\circ}B^{\circ}} = \frac{16.91}{24} = 0.7046$ $C D = 44^{\circ} 48^{\circ}$ $BC = 24 \cos 52^{\circ} = 24 \times 0.6157$ = 14.78 ft. $B^{\circ}C = 24 \cos 44^{\circ} 48^{\circ} = 24 \times 0.7096$ = 17.03 ft. $B^{\circ}B = 17.03 - 14.78 = 2.25 \text{ ft}.$

B E $AA_1 = OA_1 \tan 42^\circ = OB_1 \tan \theta$ (a) OB, = 0A, Acc 550 (4) $\tan \theta = \frac{OA_{i}}{OB_{i}} \tan 42^{\circ} \quad \text{from (a)}$ $= \frac{OA_{i}}{OA_{i}} \tan 42^{\circ} \quad \text{from (b)}$ for (a) OA, Acc 550 = tam 42° cos \$5° 019004×01011 = 0.9004 X 0.5736 - 0.2165 0 = angle of elevation 270 191

 $\begin{aligned} \text{Aternative I} \\ 68 \times 7 + 196 \times 2\frac{3}{4} &= 476 + \frac{49}{4} \times \frac{77}{4} \\ &= 476 + 539 \\ &= 1015 \text{ d}, \end{aligned}$ $\begin{aligned} \text{Atternative II} \\ (68 + 196) \times 1\frac{1}{2}d + \text{ f} 2 56 \text{ bd} = 264\times \frac{3}{2} \text{ d} + 546 \text{ d} = 942 \text{ d} \end{aligned}$ $\begin{aligned} \text{Method II} \text{ is cheaper by} \\ 1015 - 942 &= 13 \text{ d} \\ \text{Weight box} \text{ id} \end{aligned}$

Shamash Secondary School Conditional Exam. Sept.1965

Subject: Arithmetic & Trigonometry Class: 4th Year Secondary.

Date: 14/9/1965 Time: 8.00-10.30

Attempt all questions.

Find the income produced by investing £253 15s. in 34% stock at 101% and the amount realised by subsequently selling out at 99.

A spherical ball of lead 3 in. in diameter is melted and recast into three spherical balls. The diameters of two of these are 1½ in. and 2 in. respectively. What is the diameter of the other ?

A ladder, 24ft. long, makes an angle of 52° with the ground and leans against a vertical wall. If the top of the ladder slips down 2 ft. how far will the foot of the ladder move ?

An aeroplane is flying horizontally due E. When it is due N. of an observer its elevation is 42°. Find its elevation when it is N. 55° E. of the observer.

A householder has two alternative methods of paying for the electric light and power that he uses during one quarter of a year. Either he pays 7d. per unit for light and 2%d. per unit for power, or he pays 1%d. per unit for light and for power and also a quarterly charge of £2 5s. 6d.

5 Determine which method is the cheaper, and by how much, for a quarter during which he uses 68 units for light and 196 units for power.

A householder paying by the first method used 117 lighting units during a quarter, and his electricity bill for the quarter was £5 3s. 1d. Find the number of units used for power.

240 154

F. Other Let a state . . .

007

. 1.1

4 . . .

45 ... the state state state will be made to a state the same

12m 201 Bon segar fat makes 88 units 12 gets and 195 and

sound hilder und as by the rare's section wash deviation and the section of and the section of t

Subject : Arithmetic & Trigonometry

Class : 4th Year Secondary

Attempt all questions.

- 1. Find the income produced by investing £253 15s. in 31% stock at 1013 and the amount realised by subsequently selling out at 99.
- 2. A spherical ball of lead 3 in. in diameter is melted and recast 12 in respectively. What is the diameter of the other? and 2this
- 3. A ladder, 24ft. long, makes an angle of 52° with the ground and leans against a vertical wall. If the top of the ladder slips down 2 ft. how far will the foot of the ladder move?
- 4. An aeroplane is flying horizontally due E. When it is due N. of an observer its elevation is 42°. Find its elevation when it is N. 55° E. of the observer.

()

5. A householder has two alternative methods of paying for the electric light and power that he uses during one quarter of a year. Either he pays 7d. per unit for light and $2\frac{3}{4}d$. per unit for power, or he pays l_2^1d . per unit for light and for power and also a quarterly charge of £2 5s. 6d.

Determine which method is the cheaper, and by how much, for a quarter during which he uses 68 units for light and 196 units for power.

A householder paying by the first method used 117 lighting units during a quarter, and his electricity bill for the quarter was £5 3s. ld. Find the number of units used for power.

Shamash Secondary School

Date : 14/9/1965 Time : 8.00-10.30

into three spherical balls. The diameters of two of these are

Shanash Secondary School.

subject : Arithmetic & Trigonometry

Date : 14/9/1965 Thme : 8.00-10:50

EE1

Class : 4th Year Secondary

Attempt all questions.

1. Find the income produced by investing \$255 15s. in $\frac{31}{23}$ stock at 101 and the amount realised by subsequently selling out at 99.

A spherical ball of lead 5 in. in diameter is melted and recast into three spherical balls. The diameters of two of these are by increspectively. What is the diameter of the other?

5. A ladder, 24ft. long, makes an angle of 52° with the ground and leans against a vertical wall. If the top of the ladder slips down 2 ft. how far will the foot of the ladder move?

4. An aeroplane is flying horizontally due E. When it is due N. of an observer its elevation is 42°. Find its elevation when it is N. 55° E. of the observer.

5. A householder has two alternative methods of paying for the electric light and power that he uses during one quarter of a year. Exther he pays 7d, per unit for light and $2\frac{3}{4}d$, per unit for power, or he pays $1\frac{1}{2}d$, per unit for light and for power and also a quarterly charge of £2 5s. 6d.

Determine which method is the cheaper, and by how much, for a quarter during which he uses 68 units for light and 196 units for power.

A householder paying by the first method used 117 lighting units during a quarter, and his electricity bill for the quarter was \$5 3s. 1d. Find the number of units used for power. <u>lst Juarter Exam.</u> Subject: Arithmetic & Trigonometry. Class: 4th Secondary.

Ansver all questions.

(a) Decimalise: -

29	15s	103d ·
\$ 5	25	2 3 d
£10	10s	8 <u>3</u> d.

(b) Express in shillings and pence to the nearest ¹/₄d
 £0.840, £0.730, £0.910

(c) Express as a compound quantity correct to the nearest unit of the lowest given denomination.
 0.6186 of 7¹/₂ tons. (tons, cwt., qr.).

2. A man walks from his house to a town 6 miles away at 4 miles per hour and . cycles back again at 12 miles per hour. Find his average speed for the double journey.

3. A virless pole stands at the corner A of a rectangular court ABCD. Its elevation from the corner B is 50° . Find its elevation from the opposite corner C; given the length of AB = $\frac{3}{4}$ that of AD.

4. A ship steaming S60°E at 10 miles an hour is 10 miles N of a lighthouse at 12.00 noon. At what time will the ship be due E. of the light house ?

5. The area of a rectangular field is 2 acres and its breadth is 88 yds - Find the perimeter of the field and the length of the diagonal correct to the nearest **yards**

Date: 1/12/1958 Time: 90 minutes.

lst Quarter Exam.

Subject: Geometry Class: 4th Secondary

2

Attempt all questions.

- 1. Prove your construction.
 - BC=CD = 6 cm. and the angle ABC = 75°. Construct the point I on AB produced such that triangle AID is equal in area to the quadrilateral ABCD. Measure AJ.
- ABC is a triangle. Y & Z are the mid-points of AC and AB respectively. AC is produced to D so that CD = AY. DP is drawn parallel to BA to meet BC and ZY (both produced) at P and W respectively. Show that the triangles 3. DCP and AYZ are congruent.
 - Calculate the ratio of the area of the parallelogram ZBPW to that of the triangle ABC.

01.34

Net. differ : BERRE

- (c) Extreme as a contained quantity correct to the secrest unit of the lovest given denominative.
- 2. M age walks from his house to a tora 6 miles any at 4 miles par hour and ovoles back again at 12 miles ver hear. End. State State

the thorneon whit out the part of the

osteje o a the same

-

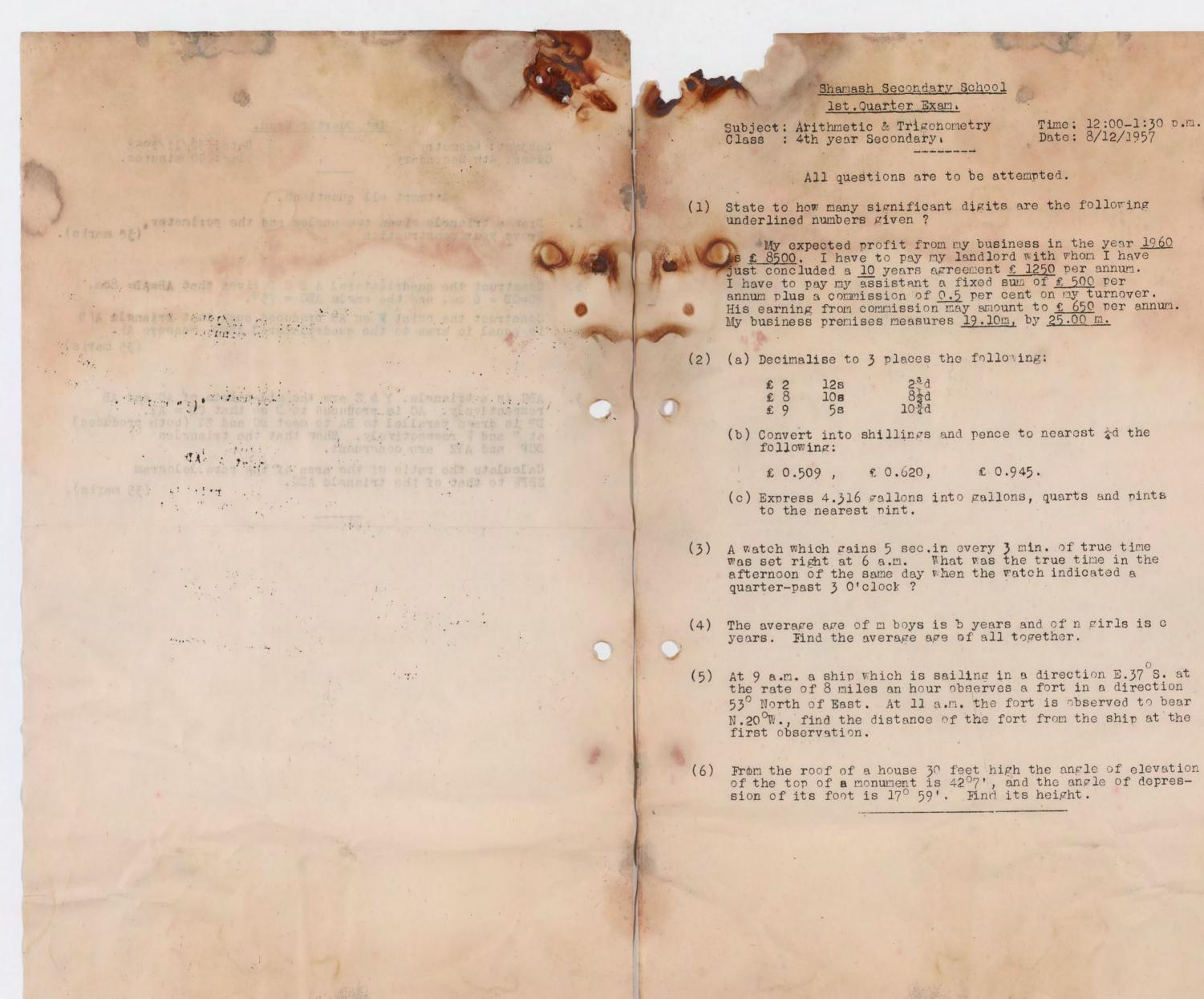
- A tirless pole stands of the corner 4 of a rectannellar court A302...1ts ployation from the corner 6 is 50. Bind its slown the from the corporite carner 6; first the length of A5 = 5 that of AD. 5 ton lite
- 4. A blir standar 800 E at 10 alles an hear is 10 miles be des 5. within the light broke ?
 - The area of a rectan alar field is 2 spres and its breadth at 88 wds Find the retimeter of the field and the length of the discound correct to the nearest field 2. S. S. S.

Date: 30/11/1958 Time: 90 minutes.

Draw a triangle given two angles and the perimeter. (30 marks).

Construct the quadrilateral A B C D given that AB=AD= 80m. (35 marks)

(35 marks).



Time: 12:00-1:30 p.m. Date: 8/12/1957

Shamash Secondary School 1st. Quarter Exam:

Time: 12:00-1:30 p.m. Date: 8/12/1957 Subject: Arithmetic & Trigonometry Class : 4th year Secondary.

(1) State to how many significant digits are the following underlined numbers given ?

My expected profit from my business in the year 1960 is £ 8500. I have to pay my landlord with whom I have just concluded a 10 years agreement \pounds 1250 per annum. I have to pay my assistant a fixed sum of \pounds 500 per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to \pounds 650 per annum. My business premises measures 19.10m, by 25.00 m.

(2) (a) Decimalise to 3 places the following:

£	2	128	2-3 d
£	8	10s	8 [±] d
£	9	58	23d 81d 104d

- (b) Convert into shillings and pence to nearest ad the following:
 - € 0.509 , £ 0.620,
- (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint.
- (3) A watch which gains 5 sec.in every 3 min. of true time was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 O'clock ?
- (4) The average age of m boys is b years and of n girls is c years. Find the average age of all together.
- first observation.

to Associate and SCINES I ALL SCIENCE the year and and any other Q.

is passions and to powerteente

An how many similarity distres and there and the letter

And the province (rough or president in the pick inter-inter a long of the line of the pick of the pick inter-pict structure of the state of the state of the pick of a contraction of the pick of the solution of the pick from contract of the solution to the bill of the set fill a solution of the solution to the bill of the set fill a solution of the solution of the bill of the set fill a solution of the solution of the bill of the set fill a solution of the solution of the bill of the set fill a solution of the solution of the bill of the solution of the set fill a solution of the solution of the bill of the solution of the set fill a solution of the solution of the bill of the solution of th

Dectionlined to 3 places the falloner anto Ville 127 6335

(b.) Convert into shallings and pages to rearrant to the . 15 16.40.509

£ 0.945. (a) Exercise 4,316 realions into relions, querta and einte to the mentant.

(3) A watch which raine 5 sec.in overy 3 min. of true time was set right at 6 a.m. What was the true time in the externeon of the same day when the watch indicated a quester-most 3.0/clock ?

(4) The average are of a boys is b years and of a mirls is c years. Mud the average are of all together.

(5) At 9 a.m. a ship which is sailtne in a direction B. M⁰3. At the rate of 8 miles on hour observes, a fort in a direction (5) South of Best. At 11 a.m. the fort is therewood to bear i. 20 M., find the distable of the fort from the ship at the NCOLFRYTORIC JETIL

(6) From the root of a house 30 feet high the angle of elevation of the ten of a meaument is 4207", and the angle of depres-sion of its foot is 170 59". Mind its height.

All questions are to be attempted.

€ 0.945.

(5) At 9 a.m. a ship which is sailing in a direction E.37 S. at the rate of 8 miles an hour observes a fort in a direction 53° North of East. At 11 a.m. the fort is observed to bear N.20°W., find the distance of the fort from the ship at the

(6) From the roof of a house 30 feet high the angle of elevation of the top of a monument is 42^{07} ', and the angle of depression of its foot is 17^{0} 59'. Find its height.

Shamash Secondary School lst.Quarter Exam.

Time: 12:00-1:30 p.m. Date: 8/12/1957 Subject: Arithmetic & Trigonometry Class : 4th year Secondary.

All questions are to be attempted.

(1) State to how many significant digits are the following underlined numbers given ?

My expected profit from my business in the year 1960 is £ 8500. I have to pay my landlord with whom I have just concluded a 10 years agreement \pounds 1250 per annum. I have to pay my assistant a fixed sum of \pounds 500 per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to \pounds 650 per annum. My business premises measures 19.10m, by 25.00 m.

(2) (a) Decimalise to 3 places the following:

2	2	128	2°d
2	8	10s	8 [±] d
E	9	55	22d 81d 104d

- (b) Convert into shillings and pence to nearest id the following:
 - € 0.620, € 0.945. € 0.509 ,
- (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint.
- A watch which gains 5 sec.in every 3 min. of true time (3)afternoon of the same day when the watch indicated a quarter-past 3 O'clock ?
- (4)years. Find the average age of all together.
- N.20 $^{\circ}$ W., find the distance of the fort from the ship at the first observation.

Dia Of: L-OBUSE : SOPET Subject! Atitumetic & Triroudaetry. Glass : 4th year Secondery.

All mostions are to be attempted

(1) State to how many simulitant digits are the following and ordered numbers siven ?

Wy expected profit from pa business in the year 1950 to 1.0500. I have to pay my landlord with whom I have inst obacined a 10 years acreement 1.1250 per annum. I have to pay my assistent a fixed sub of 5.500 per annum plus a commission of 0.5 per cent on my turnover. His earning fram commission may amount to 5.650 per annum. My business premises measures 19:10m; by 25.00 mt

2) (a) Decimalize to 3 places the follo inc:

- (b) Convert into shillings and pence to nearest id the
- a 0.509 , e 0.620; e 0.945: (c) Express 4.316 collons into rellons, quarts and bints to the nearest fint.
- (3) A watch which rains 5 sec.in overy 3 min. of true time was set right at 6 s.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 0'olool ?
- Star. .
- 55" North of Bast. At 11 a.m. the fort is observed to bear N.20°R., find the distance of the Port from the shin at the
- (6) From the roof of a house 30 fast high the angle of slevition of the top of a monument is 4207, and the angle of depres-sion of its foot is 170 59'. Find I'ts height.

was set right at 6 a.m. What was the true time in the

The average age of m boys is b years and of n girls is c

(5) At 9 a.m. a ship which is sailing in a direction E.37 S. at the rate of 8 miles an hour observes a fort in a direction 53° North of East. At 11 a.m. the fort is observed to bear

From the roof of a house 30 feet high the angle of elevation of the top of a monument is $42^{\circ}7'$, and the angle of depression of its foot is 17° 59'. Find its height.

Shamash Secondary School lst.Quarter Exam.

Time: 12:00-1:30 p.m. Subject: Arithmetic & Trigonometry Class : 4th year Secondary. Date: 8/12/1957

All questions are to be attempted.

(1) State to how many significant digits are the following underlined numbers given ?

My expected profit from my business in the year 1960 is £ 8500. I have to pay my landlord with whom I have just concluded a 10 years agreement £ 1250 per annum. I have to pay my assistant a fixed sum of $\pounds 500$ per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to $\pounds 650$ per annum. My business premises measures 19.10m, by 25.00 m.

(2) (a) Decimalise to 3 places the following:

£	2	128	2	2 ³ d 8 ¹ / ₂ d 10 ³ / ₄ d
£	8	10s		8 _불 d
£	9	58		10 ² d

- (b) Convert into shillings and pence to nearest ad the following:
 - € 0.509, € 0.620,
- (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint.
- (3) A watch which gains 5 sec.in every 3 min. of true time was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 O'clock ?
- (4) The average age of m boys is b years and of n girls is c years. Find the average age of all together.
 - first observation.

VARPHOLDE, MARCHINE .

All Minstisses by of ore healthalk ile

ant ship press disht. diste are the following

in the test aroist trom py business 14 the yest 1000 in a 3500 i baye to her by lendiged sith them. I have itet concluded a 10 years arreaded 1.1250 to: annua. have to bot by resistant, 2 fixed and of 5.500 fer annum place a commission of 0.5, set cant of a transver. Ute carbing item consistent a negat to <u>case</u> ter annua. by maines from consistent a negat by 25, or at a budge.

and the second s

10100			ac \$ 1	1. J.	
다물러	· j. i.	001	ACCE NO.		
	14 11	部合	11.2 4 B	8 8	

- (·) . (b) . (danvart lade abtilité entre la nastest is the
 - 5. 56 D . 509 + 1. (210.620) + 0. 6 0.945.
- (a) Express 4:516 ralloss into ralloss, quarte and pinta
- (3) A vetab which calles 5 eco.is avers 1 atta: if true time was set right at 5 e.m. What was the time time in the effermode of the same day what the vetal indicated a qualiter part 2 0 elect ?
- (7) (5) At 9 a.m. a ship which is sailand is a dresting 5.37 8. st. . Soltpy tests tests
- (6) From the next of a house 30 From the birs to bird of the statics of the top of a measuremt is c2071, and the units of depres-sion of its footjis 370 591. Number 1: beight.

€ 0.945.

(5) At 9 a.m. a ship which is sailing in a direction E.37 S. at the rate of 8 miles an hour observes a fort in a direction 53° North of East. At 11 a.m. the fort is observed to bear N.20°W., find the distance of the fort from the ship at the

(6) From the roof of a house 30 feet high the angle of elevation of the top of a monument is $42^{\circ}7'$, and the angle of depression of its foot is 17° 59'. Find its height.

Shamash Secondary School lst.Quarter Exam.

Time: 12:00-1:30 p.m. Subject: Arithmetic & Trigonometry Class : 4th year Secondary. Date: 8/12/1957

All questions are to be attempted.

(1) State to how many significant digits are the following underlined numbers given ?

My expected profit from my business in the year <u>1960</u> is \pounds 8500. I have to pay my landlord with whom I have just concluded a <u>10</u> years agreement \pounds <u>1250</u> per annum. I have to pay my assistant a fixed sum of \pounds 500 per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to $\underline{1650}$ per annum. My business premises measures 19.10m, by 25.00 m.

(2) (a) Decimalise to 3 places the following:

C	2	128	2 <u>3</u> d
E	8	10s	8 ¹ / ₂ d
E	9	58	23d 81d 104d

- (b) Convert into shillings and pence to nearest id the following:
 - £0.509, €0.620, €0.945.
- (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint.
- (3) A watch which gains 5 sec.in every 3 min. of true time Was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 O'clock ?
- (4) The average age of m boys is b years and of n girls is c years. Find the average age of all together.
 - first observation.

notion, which we wanted

Subjact Plant Finade if i Indicatery of Thing, Hill All Plant i State Contract of Class All State States and S

All questions are to be attainted.

State to hav many significant divits are the following

Ny expected profit from my businessin the veri 1060 is 2 6500. I have to pay my landlord with whited have just concluded a 10 years arreament & 1250 per annua. I have to pay my assistent a fixed size of \$ 500 per annum plus a constisation of 0.5 per cont on of turnover. His samin from commission of 0.5 per cont on of turnover. My business pressies measures 19.1001 be 25.00 m.

(2) (a) Decimalized toil place the following (a) (2)

î	1	525	821	128	9	3
F	t. A	690	891 801	128	0000	
6.2		1084	is ?	a 5 a		

- (b) Contert Tradition bis and paper to nearbar it the, to 1 Low that woll of
 - & 0.509 JUNE 0.620 0.945
- (c) Exerces 4.316 relices into relices, quarte and rints to the secrest pint.
 - (3) A match which which which which so in every junic. of true time was set right at 6 a.m. What was the true time in the efferneon of the same day when the watch indicated a quarter-past 3 Otdlock 3:
- (4) The average are of m boys is b years and of m siris is an years. Find the average are of all together.
- ·... (5) At 9 a.m. a whip which is sailing in a direction E. S? S. at antiposito a si troi a covresta ruen he belin 6 to eter adt "Month of Boyreado al Jack out, the fill of the theory of to drank" N.20 W. . That the distance of the Tort from the abit at the · · · · · ·
 - (6). Fred the rodivor's house 30 feet hars the ancie of elevation of the tot of a monument 10 4207. and the ackle of depres-sion of its foot 16 10 59 . Find its weight.

(5) At 9 a.m. a ship which is sailing in a direction E.37 S. at the rate of 8 miles an hour observes a fort in a direction 53 North of East. At 11 a.m. the fort is observed to bear N.20°W., find the distance of the fort from the ship at the

(6) From the roof of a house 30 feet high the angle of elevation of the top of a monument is $42^{\circ}7'$, and the angle of depression of its foot is 17° 59'. Find its height.

Shamash Secondary School 1st. Quarter Exam. Time: 12:00-1:30 p.m. Date: 8/12/1957 Subject: Arithmetic & Trigonometry Class : 4th year Secondary.

All questions are to be attempted.

(1) State to how many significant digits are the following underlined numbers given ?

My expected profit from my business in the year 1960 is £ 8500. I have to pay my landlord with whom I have just concluded a 10 years agreement \pounds 1250 per annum. I have to pay my assistant a fixed sum of \pounds 500 per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to \pounds 650 per annum. My business premises measures 19.10m, by 25.00 m.

(2) (a) Decimalise to 3 places the following:

2	2 128	2-d
cow.	3 10s	8 [±] d
9	55	

following:

£ 0.509, € 0.620,

- (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint.
- (3) A watch which gains 5 sec.in every 3 min. of true time was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 O'clock ?
- (4) The average age of m boys is b years and of n girls is c years. Find the average age of all together.
- first observation.

Subjecti Arithmotic 4 Trigonorety Cleas : 4th year Secondary.

Time: 12:00-1:30 p.a

All questions are to be attained

to now many significant digits are the following lined numbers given ?

y expected profit from my business in the year 1960 is £ 8500. I have to ray my isndiord with vhom I have just concluded a 10 years arrequent £ 1250 per annum. I have to pay my secietant a fixed sum of £ 500 per annum plus a countestan of 0.5 per cent on my turnover. His saming from counteston way amount to £ 550 per annum. My business premises measures 19.10m, by 25.00 m. That will be the taken

2) (a) Decimalize to 3 places the follo ing:

- 1. C. Bur 1980
- (b) Convert into shillings and pence to nearest id the following:
- £ 0.509 , £ 0,620, 6 0.945.
- (c) Express 4.316 rollons into relions, quarts and pints to the nearest pint.
- (3) A match which rains 5 secing overy 3 min. of true time was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 0'clock ?
- The average are of m boys is b years and of n girls is o (4) yours. Find the average are of all together,
- At 9 a.m. a ship which is sailing in a direction 3.37 S. at the rate of 8 miles an hoar observes a fort in a direction " North of East. At 11 a.m. the fort is observed to bear N.20 W., find the distance of the fort from the ship at the
- From the roof of a house 30 feet high the angle of elevation of the top of a monument is 42^{07} , and the angle of depression of its foot is 17^{0} 59°. Find its height.

(b) Convert into shillings and pence to nearest ad the

€ 0.945.

(5) At 9 a.m. a ship which is sailing in a direction E.37 S. at the rate of 8 miles an hour observes a fort in a direction 53° North of East. At 11 a.m. the fort is observed to bear N.20°W., find the distance of the fort from the ship at the

(6) From the roof of a house 30 feet high the angle of elevation of the top of a monument is $42^{\circ}7'$, and the angle of depression of its foot is 17° 59'. Find its height.

Shamash Secondary School lst Quarter Exam.

Time: 12:00-1130 p.m. Subject: Arithmetic & Trigonometry Class : 4th year Secondary. Date: 8/12/1957

All questions are to be attempted.

(1) State to how many significant digits are the following underlined numbers given ?

My expected profit from my business in the year 1960 is £ 8500. I have to pay my landlord with whom I have just concluded a 10 years agreement £ 1250 per annum. I have to pay my assistant a fixed sum of £ 500 per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to ± 650 per annum. My business premises measures 19.10m, by 25.00 m.

(2) (a) Decimalise to 3 places the following:

2-3 d
8åd
23d 81d 104d

- (b) Convert into shillings and pence to nearest ad the following:
 - £ 0.509, £ 0.620, £ 0.945.
- (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint.
- (3) A watch which gains 5 sec.in every 3 min. of true time was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 O'clock ?
- (4) The average age of m boys is b years and of n girls is c years. Find the average age of all together.
- (5) At 9 a.m. a ship which is sailing in a direction E.37 S. at first observation.
- (6) From the roof of a house 30 feet high the angle of elevation

and the first of the second second CONXE. THIS COULT. SHEEL

Sub opt i sit the state is the interview of the state is the state is the state is a sta

The second states of the

. Art and forges of a tores, many tenns . LLL.

lev many preditional litetan are the 1911 of a

system and aliasentant www.motificer.yentelling is a 2500. I Mevetto pay my indrioid vith vion I have just concluded a 10 rearessfreenetti 11280 per andus. I have to vay my assistant a fixedulate of the foo neuto vias a coomission of 315 per babt on by tarnover. His estains from consistion may saturit to 1.550 per annus. My business predices noomore 1121000 by 2510010.

(0) ((a) Tootineties tossthlees to strategic (b) ((a)

2222	881	SC3 1
A.S	BELL	8:3:
	88.2	1209.

"(d) Securet interaction and place to heave to heave to the : imitimation :

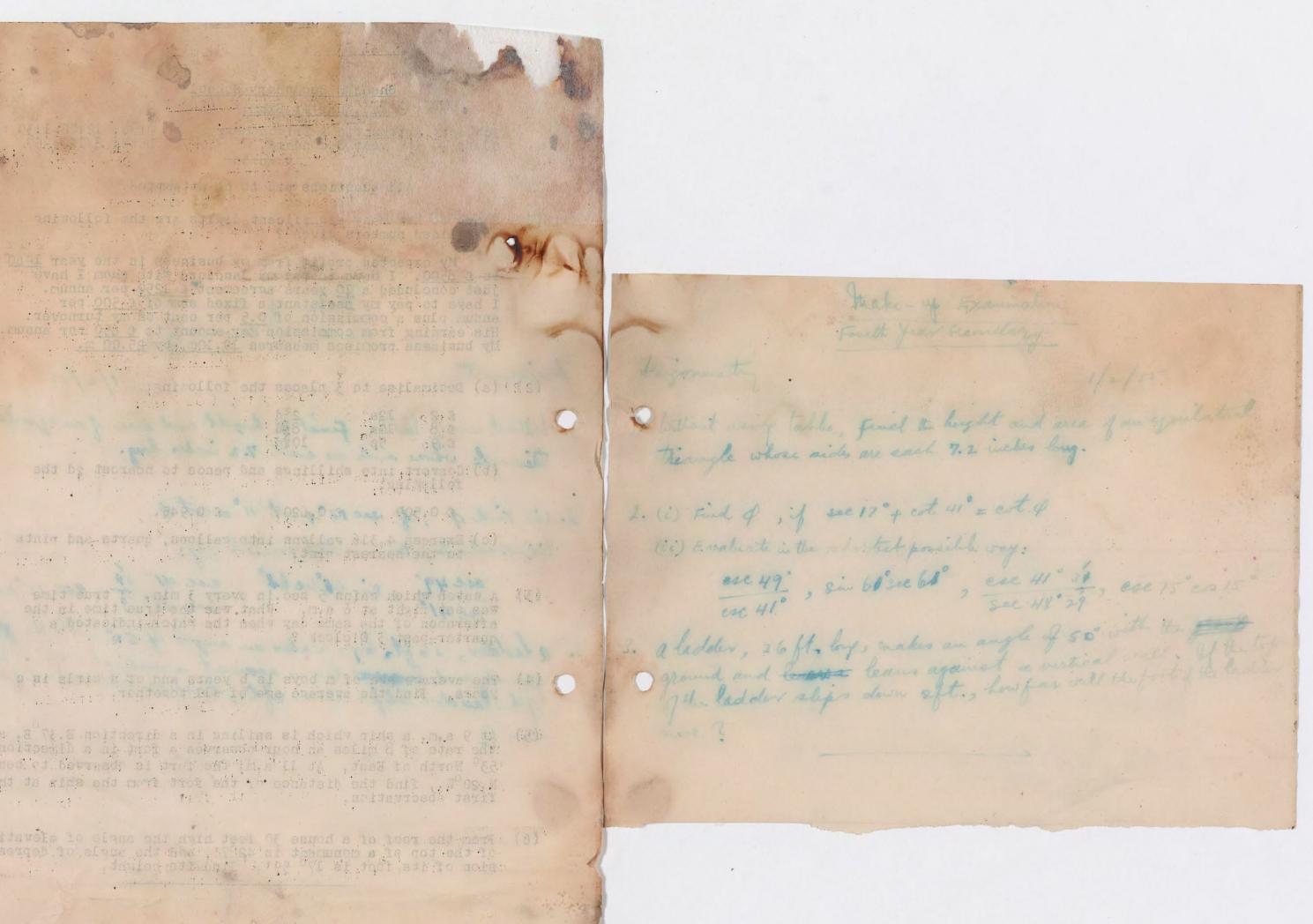
> . 200,000 -

((d) Exaress (, jl6 edlansitatorndlons, (dafta and hints) to the nearest bint.

- ((3) A match which weige 5 south unity 3 din. if true time whereas actual at 6 and "What was the true time in the siternoos of the same day abon the fate histories a quatter-past 3 0!clash .7
- ((5)) at 9 n.m. a alito thigh is satisfied in affred than a 37 A. at contracte of 8 miles on hour officience office its a direction "53" . Worth of Beet, at 11 c.c., the stat is abeaved to bear and the distance of the taxes of the south from the shift at the
- ((6) From the roof of a house 30 fout Mirh the angle of elevation of the two of a measuredt in 4207, and the mirls of hepres-stion of its fout its 170 500. Find fits adjunt.

the rate of 8 miles an hour observes a fort in a direction 53° North of East. At 11 a.m. the fort is observed to bear N.20°W., find the distance of the fort from the ship at the

of the top of a monument is $42^{\circ}7'$, and the angle of depression of its foot is 17° 59'. Find its height.



(c) Express 4.316 collers into callon duarts and mints A watch which waine 5 sec. in svery 3 min. 3 true time was set fight at 6 a.m. What was the line time in the afternoon of the sens day when the which indicated a quarter perf 5 0101001 P

(4) The average of a boys is b years and of a cirls is 9 · · · · · · · ·

and and they

At 9 a.m. a ship which is sailing in a direction $0.37^{\circ}8$, at the rate of 8 miles an hour conservas a fort in a direction 53° 8 miles in hour conservas a fort in a direction 53° North of East. At 11 a.d) the fort is observed to hear 1.20° 1. find the distance of the fort from the ship at the first becrystion.

1988 R. L. Loke Coge

- -

·

(6) From the roof of a house 30 feet high the angle of elevation of the top of a monument is 42777, and the apple of depres-sion of its for is 17 591. Number to beight.

FINAL EXAMINATIONS 1953-1954

Subject : Trigenometry

Class :Fourth year (secondary)

All questions are to be attempted

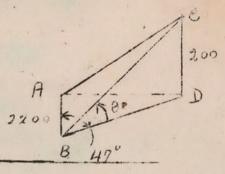
- 2. A is 5 miles due South of a port O. A ship steaming at 10 miles On hour starts from O and steams in a straight line to B 1 mile due West of A. From B the ship steams 37 East of South. Calcul-te the ship's distance from O at the end of one hour after leaving O.
- 3. Solve the triangle ABC, having given: $A = 43^{\circ} 39$, $C = 17^{\circ} 47$, b = 4 ft.

0=? BD=? SHAMASH SCHOOL

Date : 26/5/54 Time : 10:30-12:00

1. How far down a hill inclined at 7[±]/₂ to the horizon must I walk in order to descend a distance of 70 ft. vertically?

angle of elevation of C from B, correct to the nearest 10 feet.



Lectures : A the Olal Obudiah

Class: 4th , ear Secondary Subject: Arithmetic + Trizonometry TIME ALLOWED: 90 MINUTES

Attemptsix questions only: (1) a) Define sin A, cos A and tan A where A is an acute angle. b) Prove $\sin A = \cos (90^{\circ} - A)$

- c) Find from first principles sin 30° and tan 45°.
- a) Find from tables sin 55° 57° and cos 60° 57°

(2)

- b) Given tan A = 2.2372 find A from tables.
- (3) A B C D is a rectangle in which A B is 15 in. and A D is 8 in. lower than A.

Calculate the depth of B below A.

- (4) a) Divide £117 5s 3d by 49.
 - b) Express the following as decimals of a pound

12s 3d

18s 9d

> 9s 8d

- The area of a rectangular field is 2 acres and its breadth is (5) 88 yds. Find the perimeter of the field and the length of a diagonal correct to the nearest yard.
- (6) What is the correct time when the two hands of a clock coincide between 8 and 9 o'clock.
- (7) a) A class of 30 students; 12 of whom weigh 9 st. 2 lb each, the average weight of a student to the nearest 1b.
 - b) Define the gallon and state how many pints it contains.

January 25, 1957

ist quarter Exam

Calculate the angle B A C. The rectangle is held in a vertical plane with A B inclined to the horizontal at 40° and with B C D

BANKA 200

8 weigh 8 st. 4 lb. each, 7 weigh 8 st. 1 lb. each and the rest 10 st. 4 lb, 10 st. 6 lb. and 10 st. respectively. Find

april 6/4/5m Warne + Class: Fourthoyer (2) . a) Find from tables and 16 m tal 190 500 500 to From the base) a timer, 8 oft. high, the angle & elevation of a distant print is 10°, while where very drove the top of the twee (3) A B C D is a rectangle in which A B is 15 nm. and A D is 8 in. (3) Generality the angle B A C. The notacile is held in a vertical plane with A B fightmed to the horizontal at 40° and with B C D to elevation is 8. Find the distance thepaint from the ba I towed and its height above the have. 1 = tom 92" . K = y tom 82° (4) Manufertine Milly 52 38 by 49.4
 (5) Manufertine Kollowing as decimals of a pound: +18° / X = tan 80° is x = ytan 80+80 tan 80 1.4 80 88(1) H+80 1 1010 in y tan 82° = y lan 80° + 80 tan 80° 115 16 181 80 tan 80° 80x5.6713. - " in y ten 82 - tan 80 7.1154-5.6713 147 (5) The brea of a recelet while field is 2 peres and its breadth is Birds. Find the peripeter of the field and the length of a 040 == 314-18 ft = 314 connect to the merrent for 11 42 46 1 194 Ansil c= 314+80= 394 ft (6) Shat is the correct time when the two hands of a clock coincide 2 = Sin 10 : 2 = 394 The area 8 and 9 or clock.
 The area 1.2 a rerular risk of a clock.
 The area 2.2 a rerular risk of a clock of a cloc = 394 EAC10 = 394 × 5,2588 = 2269.8472 = 2270 ft. correct tothe raid to all the same suit fort. (6) Mare wetter to set of a student to the nearost by between 6 and it. The table is the set of a student to the following the set of the set HUST (7)

A) i class of a sumption of a second state of and a second of a second second second bird while the second second of

Bunnary 23, 195

THE MLANDER SO MALIA

per un sin 1, con A and tan A idente & is an source angle.

reaction fligt principles sin 300 and tan 45°,

Cird from the dist of a la la la la bath of a solt bett

at the sector with a bailt of a start of a sector (a

No X

the Brasse garantee and

621

rest 10 st. 4 1b, 10 st. 6 1b. and 10 st. respectively. Find

Attant alx questions oul

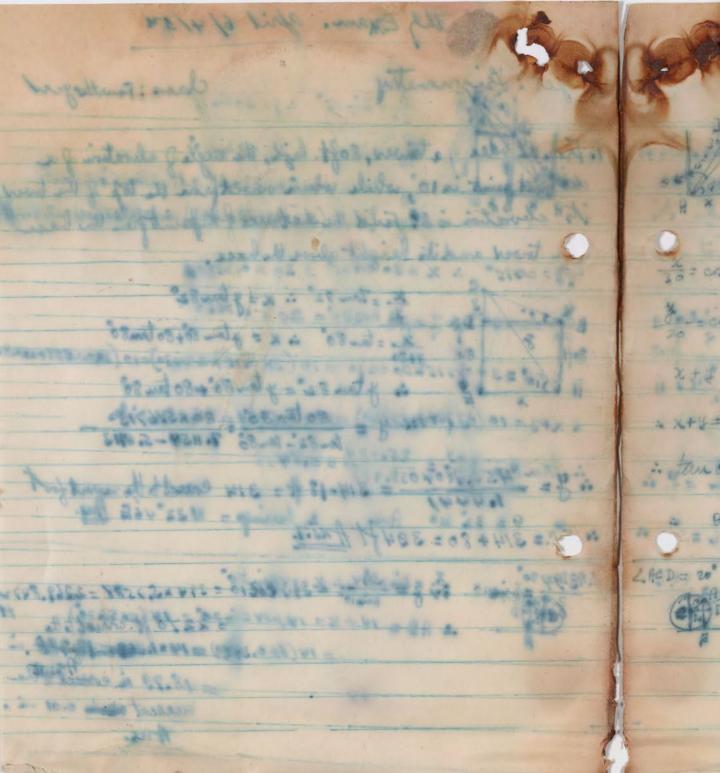
Pression atm & = con "Exhibition.

blane wich A a indified of a below A.

Secondary Strate of Appendix 3d

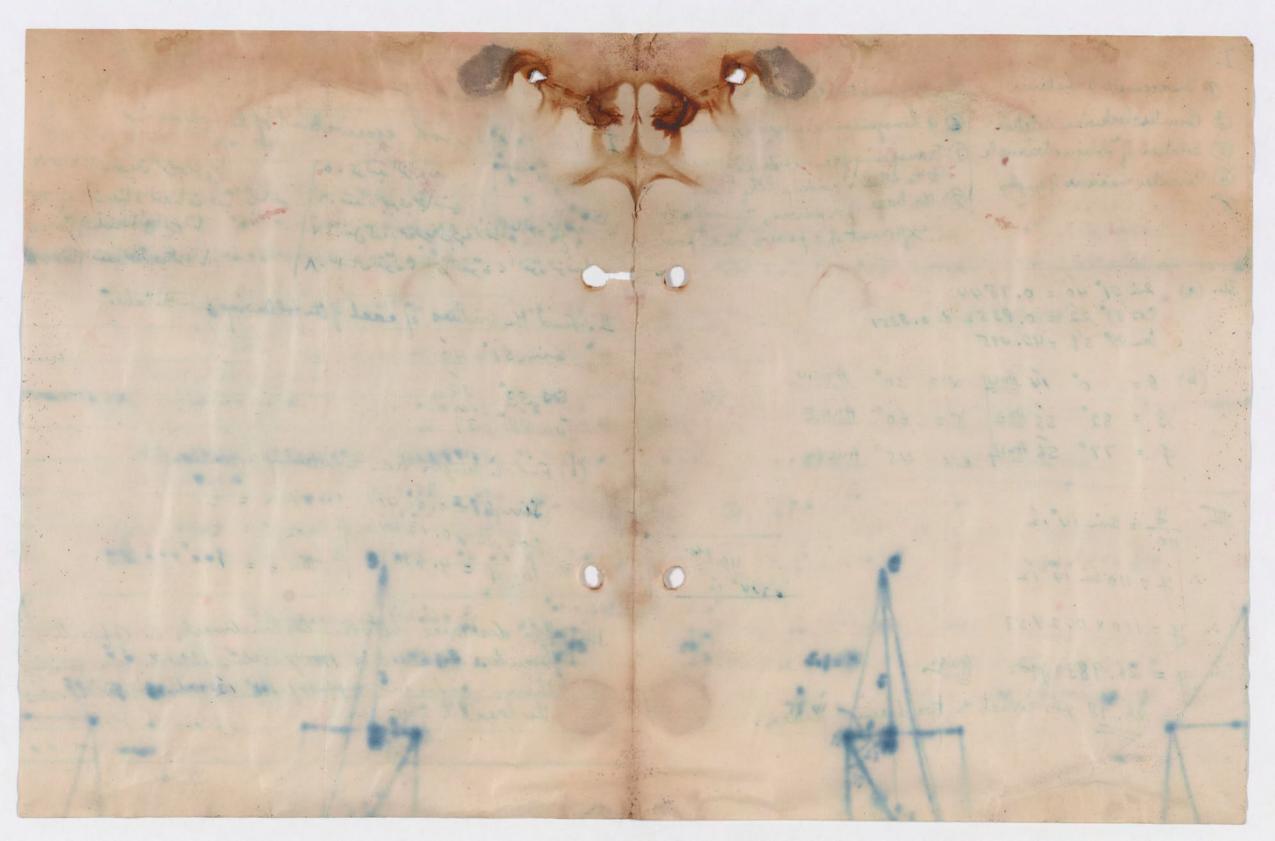
diagonal correct to the nearest yard.

A DIVID BE BE ADD TO THE DIVID IA



N 1000 9 17 61 4184 0 = Sin 75" Ag= 30 Sin 75" a the sings is he assings 5 24 (= 10 (3×0.9659+2×2) = 10 (28977+1)=38.977 // 30= 0075° A X = 30 Cm75" = 30 × 0.2599 # 10 - 20 20 1 x y = 20 20 20 20 = 20 × 0. 7660 is to I alan the to land to 2+#=30 cm25+20 cm30 = 10 (3× cm75+2 cm30)=10 (2×0.2588+2×0.80 = x+y=10 (0.7764+1.7320) =10x 2.5084= 25.084 miles : tan 8 = x+y = 25.084 = 0.6436 19 = 7+8 " 38.977 to gra more to the west int 0 = 32° 46 April & bearing = N 32° 46 E Ang. X = Sin 20 - :- X = 148 in 20" . AB = 14+ % = 14+14 sin 20° = 14 (1+ Sin 20) = 14 (1+ 0.342) = 14×1.392 = 18.788 ... = 18.79 in corriet the nearest and o. or us . Atris.

and a state of the state of in the new and the and the to a series and and the a cars & & a a a card a cars a nachar A LEAR PART'S 201 HALLE ALL MEDINE - 485 LAR XO1 - C-LIN 4 40\$ (2) at = 94% " We a - William 1 A lang a Maa vis frage a weed the as a s 44 Det 20 acting the stand in the stand and - 14 (+ ing - a) -14 (10 °. 342) calland an - 1 Rold in contract of the manent and and in . 11 4.



Lurth year 13/12/54 (Inaccessible distances Dethe generation of a wang & The @ Countesclockwise rotation I. give the English equivalent of the following @ a homogeneous algebraic Expression 3 Solution of oblique triangle D transposing from me side of the quation to the other & adding like terms ١. ساغات لدين الوجول إلى ٥٠ تدليد الزادية @ Circulas measure of augles 183 the base of a power, the index of ج. دوران منا د لدوران عقاریا ۲
 ۲. معدار جری مجانی
 ۲. نقل الدرد مع میت الی الزوایا
 ۲. نقل الدرد مع میت الی الزوایا exponent of a power, then power ع .. نظام التعديرلد ترى الزوايا -٨٠ ٢٠ لقوه ٢٠ ٢٠ القوه ٢٠ القوة النونية II. (a) Sin . 51° 40 = 0. 78.44 I stud the values of each of the following from the tables Co 33° 22 = 0.8352 & 0.8351 tan 88° 3'9 = 42.495 Sin 51° 40 (b) 0 = 0° 14 Ans.1 x = 30° Ans.4 Cor 33° 22 B = 82° 55 m2 J = 60° Ans. 5 tan 88 39 9 = 77° 56 Amsz E= 45° Ams.6_ (b) Find the angles from the following equations : 1 Sin x = 12 Sean 0 = 0.0041 $\frac{1}{110} = \frac{1}{10} = \frac{1}{10} \frac{1}{12}$ Cos B = 0.1234 cos 8 = 2 110 400. · y = 110 Sin 14 12 tan q = 4.6789 tan e = 1 014° 12 0 0 : y=110x0.2453 III. The distance between two landmarks on opposite banks of a rever is 110 yards, and the live joining them makes an angle of 14° 12 with The banks. This Aus. : y = 26.9830 yrds = 26.98 yos correct to two decimal places. the breadth of the river.

SHAMASH SCHOOL

, INAL EXAMINATIONS 1953-1954

Subject : Trigonometry

Date : 26/5/54 Time : 10:30-12:00

Class : Fourth year (secondary) -

All questions are to be attempted

1. How for down a hill inclined at $7\frac{1}{2}$ to the horizon must I walk in der to descend a distance of 70 ft. vertically?

A is 5 miles due South of a port 0. A ship steaming at 10 miles an hour starts from 0 and steams in a straight line to B 1 mile due West of A. From B the ship steams 37 East of South. Calculate the ship's distance from 0 at the end of one hour after leaving 0.

3. Solve the triangle ABC; having given:

0=? BD=?

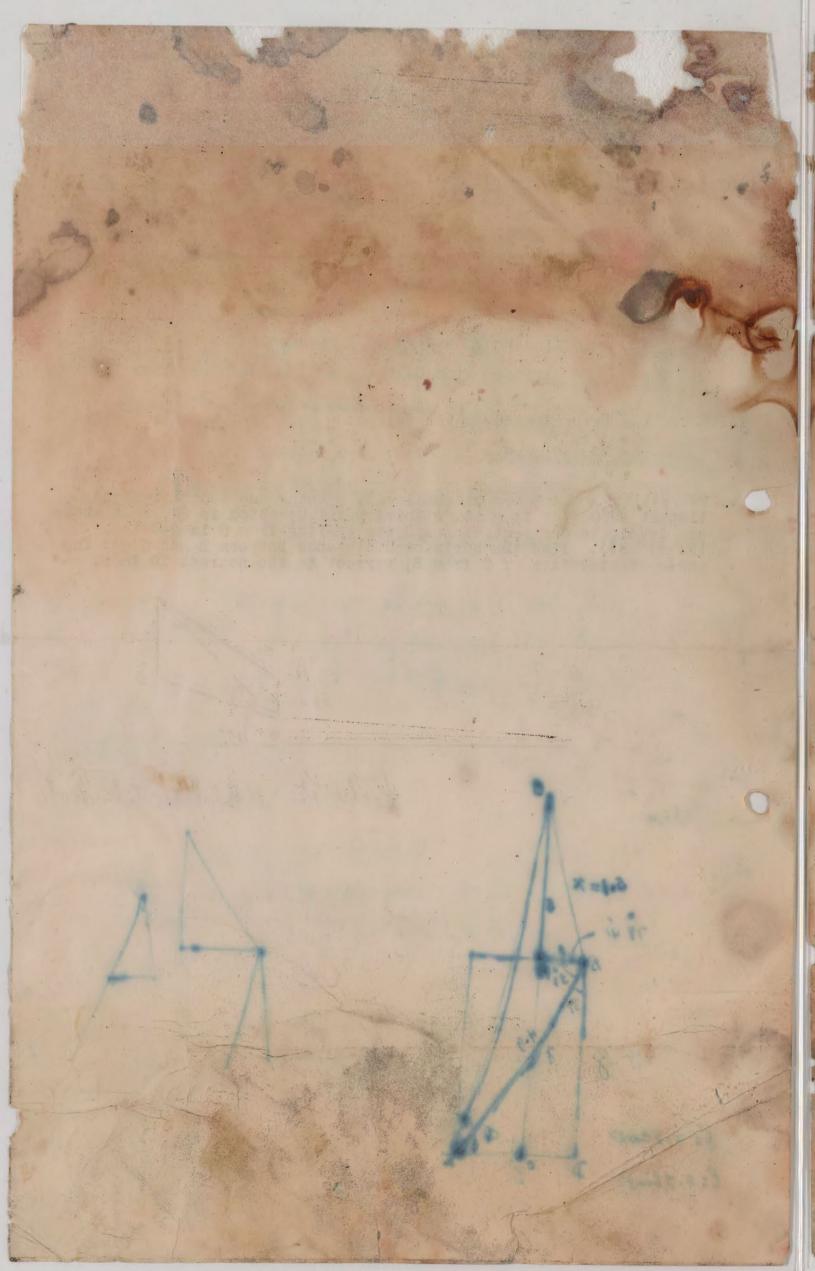
9 Co 37

$L = 43^{\circ} 39$, $C = 17^{\circ} 47$, b = 4 ft.

4. Two points A and B are at sea level, B being due south of A and distant 2200 feet from it. A third point C, which is 200 feet above sea level, is due east of A and its bearing from B is 047° (. (N. 47° E.). Find the horizontal distance between B and C and the angle of elevation of C from B, correct to the nearest 10 feet.

200 D 2200

Lectures : Addallal. Obadiah



DIATE & PRIMARY Baghdad Telephone No. 91693

1 No Date.....

على أو حقف تحد في العفل المخرى قال: مان في بلد فا عور: على

3. Translate into Arabic:

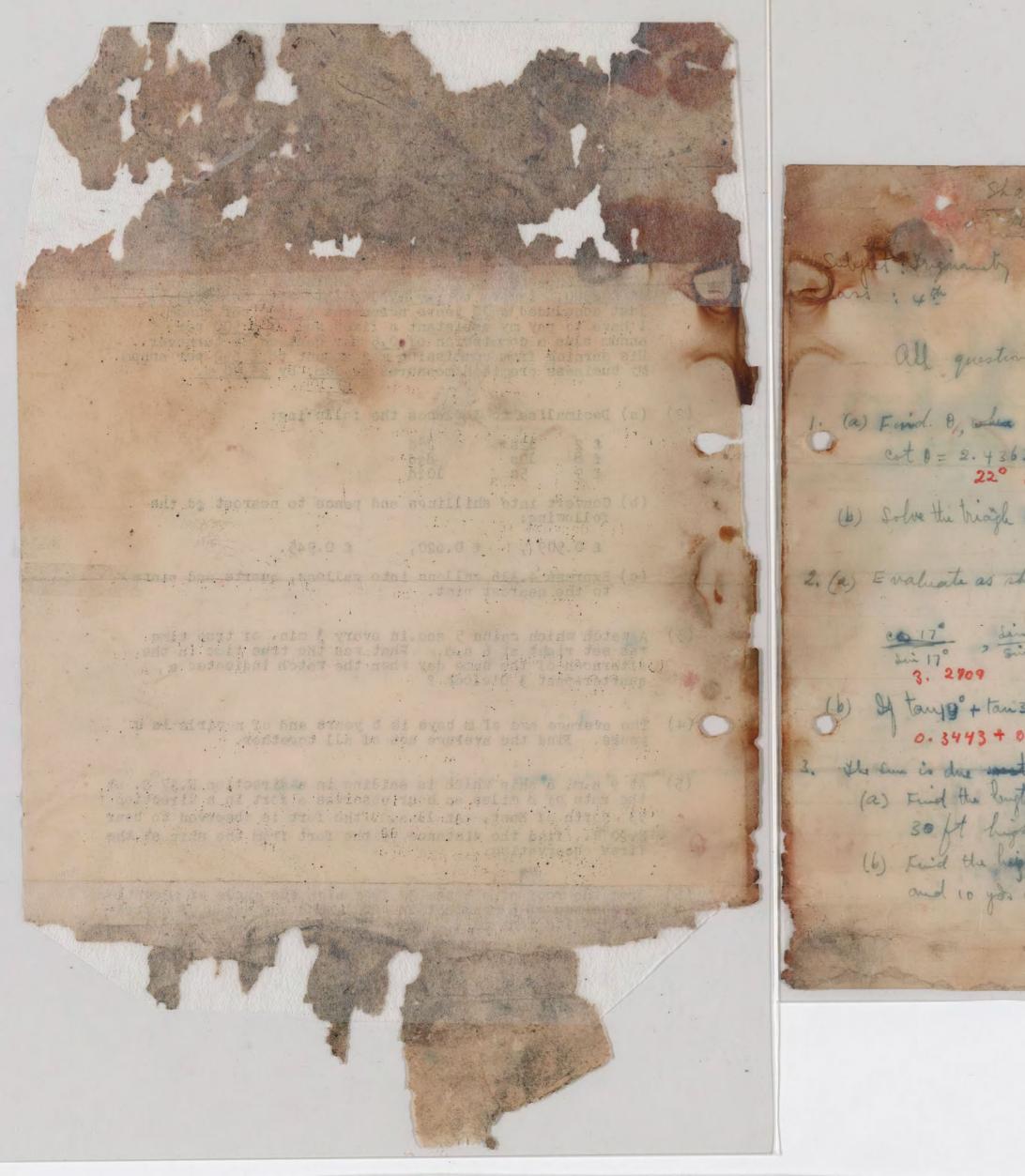
Summer Holidays holidbay before them as inj

and car to return home

رقم الن - ١٩٩٣ و تقرة العسام والعلاة وكان الجذ لها ابي مرفح من ما على الترب واللعب . وكان يت الله يد عانه الر الم مع يعود إلى مزله فتحبى وليه عند والرته وعلى فيبت في وافع سيرب فيها معنى معنى الليوم على لت الباعدة في وراءه من هذا ال الرار وهو لد يعلم فاعتباً فنها ولم هوكيه الى أنه وخرج ويعتت هي (وعدها فى الدار. وكان لا فى دارها نبت مؤرّ بالساح عليه باب مى حديد تحفل خاسرًا فيه والكيسى فنبأت الكيم فيه خلف الباب وعلمت فأفات بين يد مع مقال اللهما الراعة تعفله وتنام وانزل واقلع الباب وآهذ الكيم، فلما أنفرت خامت تعلى ومدت العلاة وعلى نعف الليل ريخيرًا للمى وخاف أن مرركة المسي فظاف فالدار فوعد إزار عديدا ومخول خاتزر بالوزار وأرض البخور ٢ - اكتب معاني هذه الفلات بالدنفلز قة : - * الطفيلية - الزنادقة - ولعة - الورطة - المقلى - أمة - حترث - كرُّها Then comes yuly, and with it examination, but these are soon finished, and with them ende the school year. Boys and get to have nearly two months. and sol by train, is any nothers The manifes holidage

frem the weather is insuelly good Tome ikaning wes in the country, forun, one can usually go to a pas The best place for a semmer holiday, however, the seaside. Some children are lucky mongh to to near the sea, but for the others who no do not, week a two at one of the big seaside towns is something which they will talk about for the whole of the following year ."

Shamash Secondary School 1st.Quarter Exam. Time: 12:00-1:30 p.m. Date: 8/12/1957 Arithmetic & Trigonometry 4th year Secondary. All questions are to be attempted auw lany significant divits are the following numbers given ? My expected profit from my business in the year <u>1960</u> is <u>£ 8500</u>. I have to pay my landlord with whom I have just concluded a 10 years agreement £ 1250 per annum. I have to pay my assistant a fixed sum of £ 500 per annum plus a commission of 0.5 per cent on my turnover. His earning from commission may amount to \pounds 650 per annum. My business premises measures <u>19.10m</u>, by <u>25.00 m</u>. (2) (a) Decimalise to 3 places the following: 12s 10s £ 8 € 9 55 (b) Convert into shillings and pence to nearest the the following: € 0.509 , € 0.620, € 0.945. (c) Express 4.316 gallons into gallons, quarts and pints to the nearest pint. A watch which gains 5 sec.in every 3 min. of true time (3)was set right at 6 a.m. What was the true time in the afternoon of the same day when the watch indicated a quarter-past 3 O'clock ? (4) The average age of m boys is b years and of n girls is c years. Find the average age of all together. (5) At 9 a.m. a ship which is sailing in a direction E.37 S. at the rate of 8 miles an hour observes a fort in a direction 53° North of East. At 11 a.m. the fort is observed to bear N.20°W., find the distance of the fort from the ship at the first observation. From the roof of a house 30 feet high the angle of elevation of the top of a monument is 42^{07} ', and the angle of depression of its foot is 17^{0} 59'. Find its height. (6)



all questions are to be attempted. 1. (a) Find 8, when of and po when : cot 0 = 2.4363, See q= 3.1241 ; coe y= 4.0213 22° 19 71° 20 14° 24' (b) Solve the triagh ABC, given that: @= 90°, B=71° 31, b=76 in. A=18° 29° a= 25.4068 C= 81.19 2. (a) Evaluate as shorth as possible sin 190 , to 290 ? 3.0713 1.1430 1,1106 > Jin 42 , co 63 0.5095 (b) If tange + tansi = tan & , Find & using table 0.3443+ 0.6009 = 0.9452 : 5 = 43 23 the sum is due spect W. at an elevation of 25°. (6) Find the height of this phildow on a vertical well running N. + S. and 10 you away from the fall. 16.08 ft = 34.335x a.4

0.9004

