

ABC SECONDARY SCHOOL

Mid-Year Examination 200X Secondary 2 Express

Mathematics Paper 2 (50 marks)

Time: 9.30 - 10.45 am

Duration : 1 hour 30 minutes

May 200X

No Additional Materials Required

Name:

Sec. 2 / Reg. No.:

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number in the spaces above.

Answer **all questions in Section A** and **one question in Section B**.

Write your answers in the spaces provided in the question paper.

If working is needed, it must be clearly shown below that question.

Omission of essential working will result in the loss of marks.

Silent electronic calculators may be used for this paper.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

You should not spend too much time on any one question.

This question paper consists of 8 printed pages and 1 graph paper.

Section A (40 marks) Answer all questions in this section.

1 Solve the equations:

(a) $4x^2 - 43x + 30 = 0$

(b) $4x^2 + 4x = 99$

Answer: (a) $x = \dots\dots\dots$ [3]

(b) $x = \dots\dots\dots$ [2]

2 Make x the subject of each formula below:

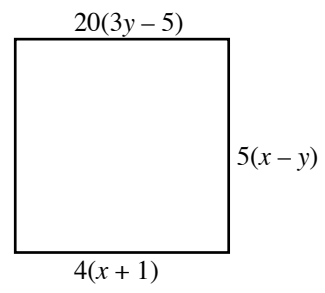
(a) $6(x + 3y) = 5$

(b) $y = \frac{z(x-z)}{x}$

Answer: (a) $\dots\dots\dots$ [2]

(b) $\dots\dots\dots$ [2]

3 (a) The figure shows the dimensions of a square in mm. Calculate the length of the square.



Answer: [3]

3 (b) Solve: $0.6x + 5y = -52.2$
 $6x + 5y = 18$

Answer: $x = \dots\dots\dots$, $y = \dots\dots\dots$ [2]

4 Complete the tables of values for the lines $y = 8 - 3x$ and $y = 2x - 4$ and draw the graphs in the graph paper provided. Hence find the solution of the two equations.

$y = 8 - 3x$

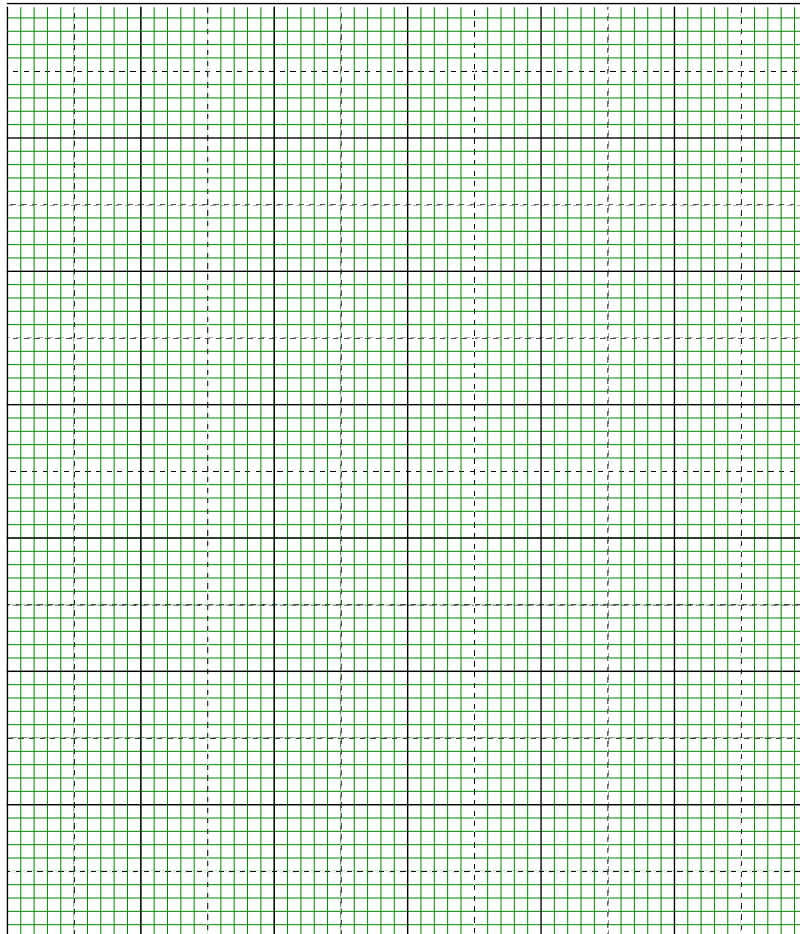
x	-1	1	3
y		5	-1

[1]

$y = 2x - 4$

x	5		3
y	6	3	2

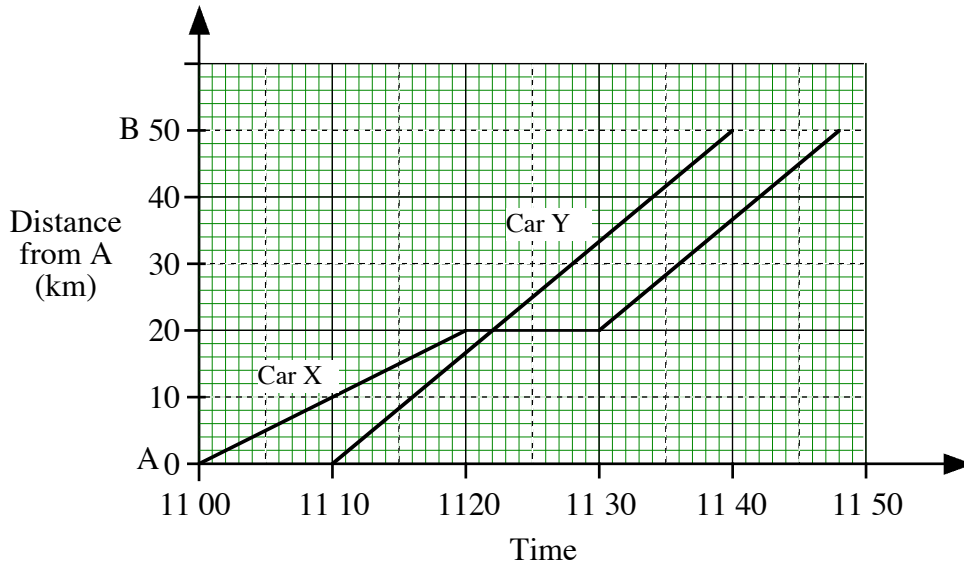
[1]



[2]

Answer: $x = \dots\dots\dots$, $y = \dots\dots\dots$ [2]

5 The graph below shows the journeys of two cars travelling from A to B.



(a) Calculate, in km/h, the speed of Car X during the first 20 minutes of its journey.

Answer: (a) [2]

(b) Calculate, in km/h, the average speed of Car X for the whole journey.

Answer: (b) [2]

(c) At what distance from A did the cars meet?

Answer: (c) [1]

(d) At what time did the cars meet?

Answer: (d) [1]

- 6 (a) In 1996, a family spent $\frac{1}{6}$ of their income on rent, $\frac{1}{4}$ on food, and $\frac{2}{9}$ on clothes. They spent a total of \$8 740 on these three items.
- (i) What was their total income?
(ii) How much *more* money did they spend on food than on clothes?
- (b) In 1997, their total expenditure on rent, food and clothes increased by 5%. If the expenditure on rent and food remained the same, by what percentage did the cost of clothes increase?

Answer: (a) (i)..... [2]
(ii).....[2]
(b)[3]

7 (a) Solve $(2x + 1)(3x - 1) = 14$

Answer: (a) $x = \dots\dots\dots$ or $\dots\dots\dots$ [3]

- 7 (b) A father is now three times as old as his son. Eight years ago, the product of their ages was 112. How old is the boy now?

Answer: (b) [4]

Section B (10 marks) Answer only **one** of the two questions in this section.

- 8 (a) Solve the simultaneous equations: $2x - 5y = 6x + 3y = 9$

Answer: (a) $x = \dots\dots\dots$, $y = \dots\dots\dots$ [4]

- (b) John paid \$18.80 for 8 pens and 6 books. Ahmad paid \$13.10 for 3 pens and 5 books of the same type. Find the cost of each pen.

Answer: (b) Each pen costs[2]

- 8 (c) One day Ali walked for 4 hours and cycled for 3 hours travelling a distance of 74 km. On another day he walked for 2 hours and cycled for 4 hours travelling a distance of 82 km. Find Ali's walking speed and cycling speed.

Answer: (c) Walking speed =, Cycling Speed = [4]

- 9 (a) Complete the table of values for the equation $y = 4 - x - x^2$.

x	-4	-3	-2	-1	-0.5	0	1	2	3	4
y	-8		2	4		4	2	-2	-8	

[3]

- (b) Taking 2 cm to represent 1 unit on the x -axis and 2 cm to represent 2 units on the y -axis, draw on the graph paper provided, the graph of $y = 4 - x - x^2$ for values of x from -4 to 4. [5]

- (c) Use your graph to find the values of x when $y = 0$.

Answer: (c) $x =$ or [2]