

General Algebra

Difficulty: Hard

Question Paper 1

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	General Algebra
Paper	Paper 4
Difficulty	Hard
Booklet	Question Paper 1

Time allowed: 94 minutes

Score: /82

Percentage: /100

Grade Boundaries:

CIE IGCSE Maths (0580)

A*	A	B	C	D
>83%	67%	51%	41%	31%

CIE IGCSE Maths (0980)

9	8	7	6	5	4
>95%	87%	80%	69%	58%	46%

Question 1

(a) Solve.

$$11x + 15 = 3x - 7$$

[2]

(b) (i) Factorise.

$$x^2 + 9x - 22$$

[2]

(ii) Solve.

$$x^2 + 9x - 22 = 0$$

[1]

(c) Rearrange $y = \frac{2(x-a)}{x}$ to make x the subject.

[4]

(d) Simplify.

$$\frac{x^2 - 6x}{x^2 - 36}$$

[3]

Question 2

- (a) The cost of 1 apple is a cents.
The cost of 1 pear is p cents.
The total cost of 7 apples and 9 pears is 354 cents.
- (i) Write down an equation in terms of a and p . [1]
- (ii) The cost of 1 pear is 2 cents more than the cost of 1 apple.
Find the value of a and the value of p . [3]
- (b) Rowena walks 2 km at an average speed of x km/h.
- (i) Write down an expression, in terms of x , for the time taken. [1]
- (ii) Rowena then walks 3 km at an average speed of $(x - 1)$ km/h.
The total time taken to walk the 5 km is 2 hours.
- (a) Show that $2x^2 - 7x + 2 = 0$. [3]
- (b) Find the value of x .
Show all your working and give your answer correct to 2 decimal places. [4]

Question 3

(a) Expand the brackets and simplify.

(i) $4(2x + 5) - 5(3x - 7)$ [2]

(ii) $(x - 7)^2$ [2]

(b) Solve.

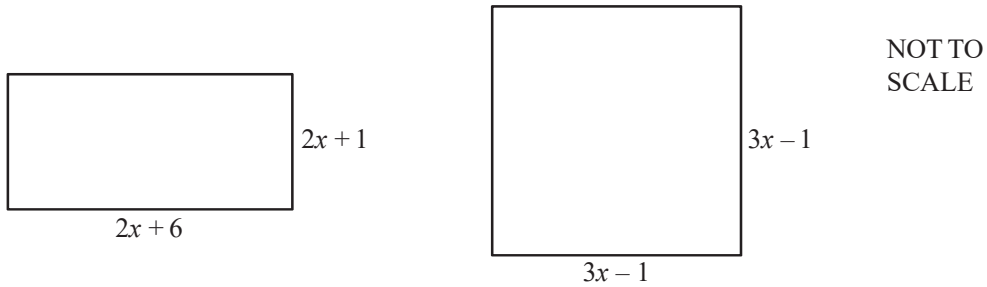
(i) $\frac{2x}{3} + 5 = -7$ [3]

(ii) $4x + 9 = 3(2x - 7)$ [3]

(iii) $3x^2 - 1 = 74$ [3]

Question 4

(a) In this part, all lengths are in centimetres.



(i) Find the value of x when the perimeter of the rectangle is equal to the perimeter of the square.

[3]

(ii) Find the value of x when the area of the rectangle is equal to the area of the square.
Show all your working.

[7]

(b) (i) Factorise $x^2 + 4x - 5$. [2]

(ii) Solve the equation $\frac{5}{x} - \frac{8}{x+1} = 1$.

Show all your working. [4]

Question 5

- (a) Solve the simultaneous equations.
You must show all your working.

$$\begin{aligned}2x + 3y &= 11 \\3x - 5y &= -50\end{aligned}\quad [4]$$

(b) $x^2 - 12x + a = (x + b)^2$

Find the value of a and the value of b . [3]

- (c) Write as a single fraction in its simplest form.

$$\frac{x}{2x - 5} + \frac{3x + 2}{x - 1}\quad [4]$$

Question 6

(a) (i) Factorise $3x^2 + 11x - 4$. [2]

(ii) Solve the equation $3x^2 + 11x - 4 = 0$. [1]

(b) (i) Show that $\frac{2}{2x+11} - \frac{1}{x-4} = \frac{1}{2}$ simplifies to $2x^2 + 3x - 6 = 0$. [4]

(ii) Solve the equation $2x^2 + 3x - 6 = 0$.
You must show all your working and give your answers correct to 2 decimal places. [4]

Question 7

Solve.

$$\frac{2}{x+3} + \frac{1}{12} = \frac{3}{2x-1}$$

[7]