

General Algebra

Difficulty: Hard

Question Paper 4

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

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) Expand and simplify.

(i) $4(2x - 1) - 3(3x - 5)$ [2]

(ii) $(2x - 3y)(3x + 4y)$ [3]

(b) Factorise.

$x^3 - 5x$ [1]

(c) Solve the inequality.

$\frac{2x + 1}{3} \leq \frac{5x - 8}{4}$ [3]

(d) (i) $x^2 - 9x + 12 = (x - p)^2 - q$

Find the value of p and the value of q .

[3]

(ii) Write down the minimum value of $x^2 - 9x + 12$.

[1]

(iii) Write down the equation of the line of symmetry of the graph of $y = x^2 - 9x + 12$.

[1]

Question 2

(a) Solve the inequality.

$$7x - 5 > 3(2 - 5x)$$

[3]

(b) (i) Factorise completely.

$$pq - 2q - 8 + 4p$$

[2]

(ii) Factorise.

$$9p^2 - 25$$

[1]

(c) Solve this equation by factorising.

$$5x^2 + x - 18 = 0$$

[3]

Question 3

(a) Simplify.

(i) $x^3 \div \frac{3}{x^5}$ [1]

(ii) $5xy^8 \times 3x^6y^{-5}$ [2]

(iii) $(64x^{12})^{\frac{2}{3}}$ [2]

(b) Solve $3x^2 - 7x - 12 = 0$.

Show your working and give your answers correct to 2 decimal places. [4]

(c) Simplify $\frac{x^2 - 25}{x^3 - 5x^2}$ [3]

Question 4

- (a) Solve the equation $8x^2 - 11x - 11 = 0$.
Show all your working and give your answers correct to 2 decimal places. [4]

- (b) y varies directly as the square root of x .
 $y = 18$ when $x = 9$.
Find y when $x = 484$. [3]

- (c) Sara spends $\$x$ on pens which cost $\$2.50$ each.
She also spends $\$(x - 14.50)$ on pencils which cost $\$0.50$ each.
The **total** of the number of pens and the number of pencils is 19.
Write down and solve an equation in x . [6]

Question 5

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

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

(b) Expand and simplify.

$$(2x-3)^2 - 3x(x-4) \quad [4]$$

(c) (i) Factorise.

$$2x^2 + 5x - 3 \quad [2]$$

(ii) Simplify.

$$\frac{2x^2 + 5x - 3}{2x^2 - 18} \quad [3]$$

Question 6

(a) Simplify.

$$\frac{x^2 - 3x}{x^2 - 9}$$

[3]

(b) Solve.

$$\frac{15}{x} - \frac{20}{x+1} = 2$$

[7]

Question 7

(a) Write as a single fraction

(i) $\frac{5}{4} - \frac{2x}{5}$, [2]

(ii) $\frac{4}{x+3} + \frac{2x-1}{3}$. [3]

(b) Solve the simultaneous equations.

$$\begin{aligned} 9x - 2y &= 12 \\ 3x + 4y &= -10 \end{aligned}$$
 [3]

(c) Simplify $\frac{7x+21}{2x^2+9x+9}$. [4]