

SAMPLE PAPER 5: PAPER 1

QUESTION 1 (25 MARKS)

Question 1 (a)

$$7 - 4x \geq 2x + 1$$

$$-4x - 2x \geq 1 - 7$$

$$-6x \geq -6 \text{ [You reverse the inequality when you divide both sides by a negative number.]}$$

$$x \leq 1$$

ANSWER: $x \leq 1$, $x \in \mathbb{R}$, All real numbers less than or equal to 1

Question 1 (b)

$$x^2 + x - 6 = (x - 2)(x + 3)$$

$$\frac{1}{x^2 + x - 6} = \frac{1}{x + 3} \quad \leftarrow \text{Multiply both sides by } (x - 2)(x + 3)$$

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

$$\frac{(x - 2)(x + 3)}{(x - 2)(x + 3)} = \frac{(x - 2)(x + 3)}{(x + 3)}$$

$$1 = x - 2$$

$$\therefore x = 3$$

Question 1 (c) (i)

$$c: y = 12 - x - x^2$$

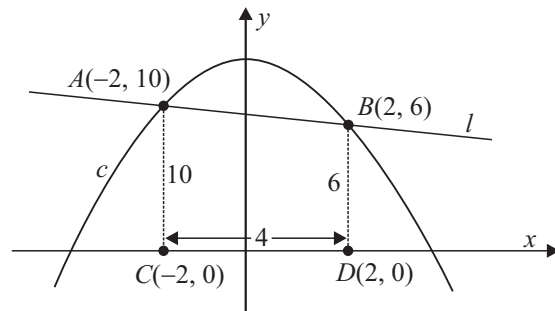
$$l: x + y - 8 = 0 \Rightarrow y = 8 - x$$

$$l \cap c \Rightarrow 8 - x = 12 - x - x^2$$

$$\therefore x^2 = 4 \Rightarrow x = \pm\sqrt{4} = \pm 2$$

$$x = 2: y = 8 - (2) = 6 \Rightarrow B(2, 6)$$

$$x = -2: y = 8 - (-2) = 10 \Rightarrow A(-2, 10)$$



Coordinates of points: $A(-2, 10)$, $B(2, 6)$, $C(-2, 0)$, $D(2, 0)$

Question 1 (c) (ii)

$$A = \left(\frac{10 + 6}{2} \right) 4 = 8(4) = 32$$

