

SAMPLE PAPER 6: PAPER 1

QUESTION 2 (25 MARKS)

Question 2 (a)

$$f(x) = 3\sqrt{x}$$

$$f(12) = 3\sqrt{12} = 3\sqrt{4 \times 3} = 3 \times 2\sqrt{3} = 6\sqrt{3}$$

Question 2 (b)

Let x = Number of apples

Let y = Number of oranges

$$3x + 4y = 130 \dots (1)$$

$$4x + 2y = 120 \dots (2) (\times -2)$$

$$\begin{array}{r} 3x + 4y = 130 \\ -8x - 4y = -240 \\ \hline -5x = -110 \Rightarrow x = 22 \text{ c} \end{array}$$

Substitute this value of x into equation (1).

$$3(22) + 4y = 130$$

$$66 + 4y = 130$$

$$4y = 130 - 66 = 64$$

$$\therefore y = 16 \text{ c}$$

Cost of an apple = 22 cent, cost of an orange = 16 cent

Cost of six apples and six oranges = $6(22) + 6(16) = 228 \text{ c} = \text{€}2.28$

Question 2 (c) (i)

$$\begin{aligned} \text{Area of glass} &= (11 - 2x)(11 - 4x) \\ &= 121 - 44x - 22x + 8x^2 \\ &= 121 - 66x + 8x^2 \end{aligned}$$

Question 2 (c) (ii)

$$121 - 66x + 8x^2 = 40$$

$$8x^2 - 66x + 81 = 0$$

$$(2x - 3)(4x - 27) = 0$$

$$\therefore x = \frac{3}{2}, \frac{27}{4} = 1.5 \text{ cm}, 6.75 \text{ cm}$$

ANSWER: $x = 1.5 \text{ cm}$ [Ignore 6.75 cm as $2x$ would be longer than 11 cm.]

