

SAMPLE PAPER 5: PAPER 2

QUESTION 1 (25 MARKS)

Question 1 (a)

$$AC \cap DC = \{C\}$$

$$AC : x - y - 4 = 0$$

$$DC : 2x + y - 5 = 0$$

$$3x - 9 = 0 \Rightarrow x = 3$$

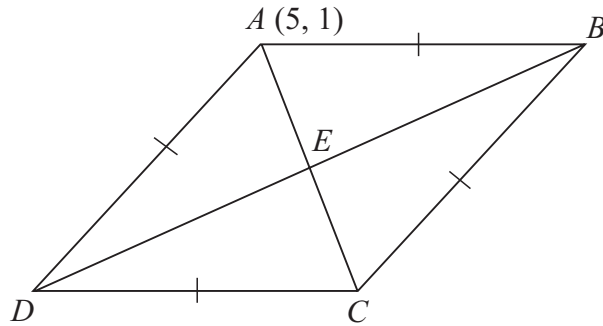
$$3 - y - 4 = 0 \Rightarrow y = -1$$

$$\therefore C(3, -1)$$

E is the midpoint of A and C

$$A(5, 1), C(3, -1)$$

$$E = \left(\frac{5+3}{2}, \frac{1-1}{2} \right) = (4, 0)$$



Question 1 (b)

$AC \perp BD$ [Diagonals of rhombus are perpendicular.]

$$A(5, 1), C(3, -1)$$

$$\text{Slope of } AC = \frac{-1-1}{3-5} = \frac{-2}{-2} = 1$$

$$\text{Slope of } BD = -1$$

$$E = \left(\frac{5+3}{2}, \frac{1-1}{2} \right) = (4, 0)$$

$$DB : m = -1, (x_1, y_1) = (4, 0)$$

$$y - 0 = -1(x - 4)$$

$$y = -x + 4$$

$$x + y - 4 = 0$$

Question 1 (c)

$$DC \cap DB = \{D\}$$

$$DC : 2x + y - 5 = 0$$

$$DB : x + y - 4 = 0$$

$$x - 1 = 0 \Rightarrow x = 1$$

$$1 + y - 4 = 0 \Rightarrow y = 3$$

$$\therefore D(1, 3)$$

$$D(1, 3) \rightarrow E(4, 0) \rightarrow B(7, -3)$$