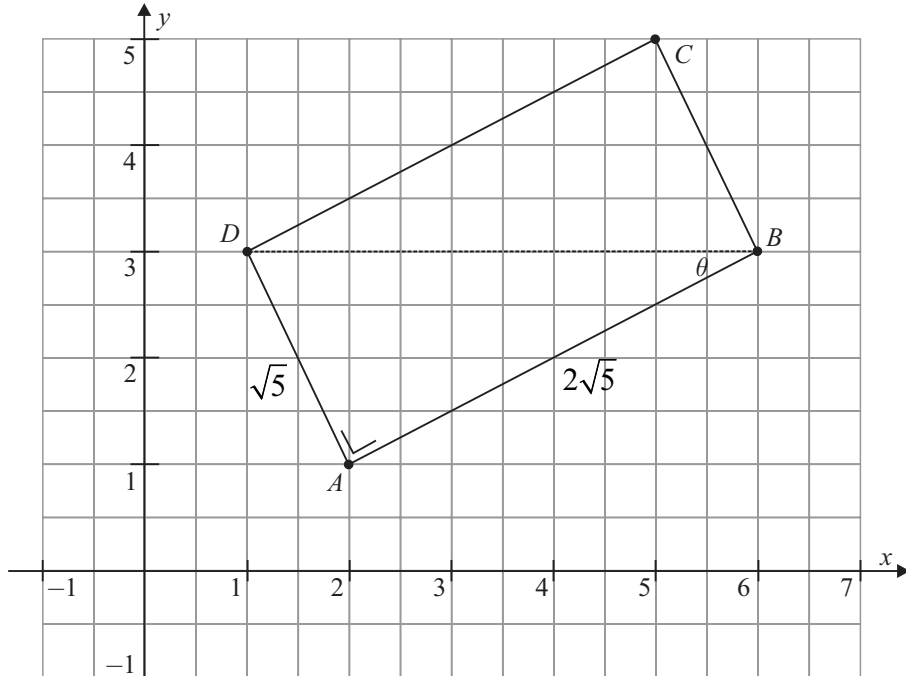


LC 2017: PAPER 2

QUESTION 3 (25 MARKS)

Question 3 (a)

$A(2, 1)$, $B(6, 3)$, $C(5, 5)$, $D(1, 3)$



$$(i) |AD| = \sqrt{(1-2)^2 + (3-1)^2} = \sqrt{(-1)^2 + 2^2} \\ = \sqrt{1+4} = \sqrt{5} \text{ units}$$

$$(ii) |AB| = \sqrt{(6-2)^2 + (3-1)^2} = \sqrt{4^2 + 2^2} \\ = \sqrt{16+4} = \sqrt{20} = 2\sqrt{5} \text{ units}$$

$$\text{Area } ABCD = |AB| \times |AD| = \sqrt{5} \times 2\sqrt{5} = 10 \text{ square units}$$

Question 3 (b)

$$B(6, 3), C(5, 5) = (x_1, y_1)$$

$$\text{Slope of } BC: m = \frac{5-3}{5-6} = \frac{2}{-1} = -2$$

$$\text{Equation of } BC: y - y_1 = m(x - x_1)$$

$$y - 5 = -2(x - 5)$$

$$y - 5 = -2x + 10$$

$$2x + y - 15 = 0$$

Question 3 (c)

$$\tan \theta = \frac{\sqrt{5}}{2\sqrt{5}} = \frac{1}{2} \Rightarrow \theta = \tan^{-1}\left(\frac{1}{2}\right) \approx 27^\circ$$
