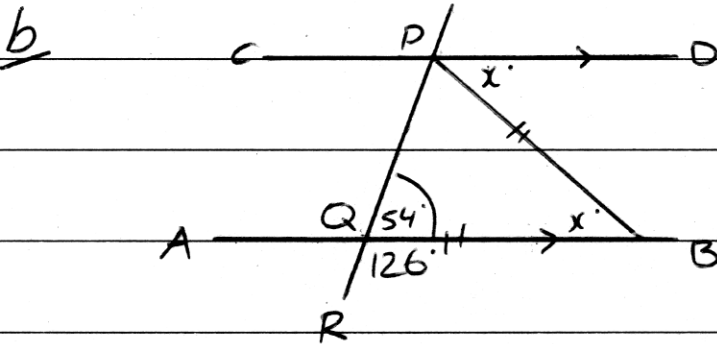


3g

$$A = P \left(1 + \frac{r}{100} \right)^n$$

$$P = 1000 \quad r = 3.5\% = 0.035 \quad n = 20$$

$$A = 1000 (1.035)^{20}$$
$$= \$1989.79$$



$$\angle PQB = 180 - 126 \text{ (} 180^\circ \text{ in straight line)}$$
$$= 54^\circ$$

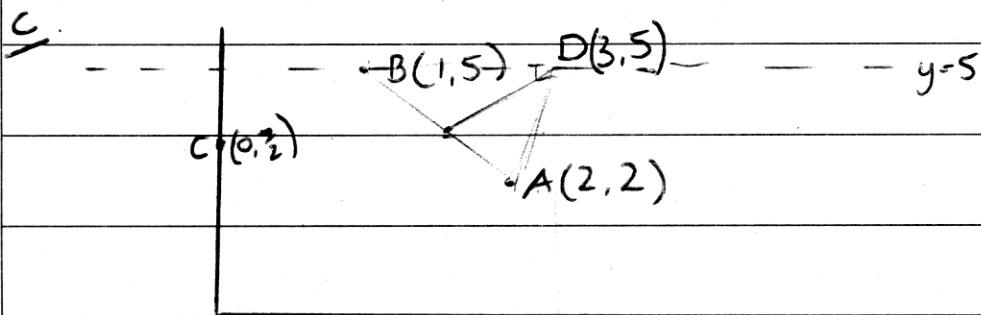
$$\angle DPB = \angle QBP \text{ (alt. } \angle\text{'s)}$$

$$\therefore \angle QBP = x^\circ$$

$$\angle QPB = 54^\circ \text{ (base angles equal in isos.)}$$

$$\therefore \angle PBQ = 72^\circ \text{ (} \Delta = 180^\circ \text{)}$$

$$\therefore x = 72^\circ \text{ (alt. } \angle\text{'s)}$$



i) midpoint = m_{AB}

$$= \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$$

$$= \left(\frac{2 + 1}{2}, \frac{2 + 5}{2} \right)$$

$$= \left(\frac{3}{2}, \frac{7}{2} \right)$$

ii) grad = M_{AB}

$$M_{AB} = \left(\frac{y_2 - y_1}{x_2 - x_1} \right)$$

$$= \frac{5 - 2}{1 - 2}$$

$$= \underline{3}$$

$$\therefore M_{AB} = -3$$

$$\text{eqn} = y - y_1 = m(x - x_1)$$

$$y - 5 = -3(x - 1)$$

$$y - 5 = -3x + 3$$

$$3x - y - 8 = 0 \quad (\text{eqn of } AB)$$

$$y - 2 = -3(x - 2)$$

$$y - 2 = -3x + 6$$

$$3x + y + 4 = 0$$



perp. distance = eqn of $3x - y - 8$ AB & point B(1,5)

$$d = \frac{|Ax_1 + By_1 + c|}{\sqrt{A^2 + B^2}}$$

$$x - 3y + 9$$

$$= \frac{|3 \cdot 1 + 5 \cdot 1 + (-8)|}{\sqrt{3^2 + 12}}$$

$$\frac{(1 \cdot 1) + (-3 \cdot 5) + 9}{\sqrt{1 + 3^2}}$$

$$= \frac{1 + (-15) + 9}{\sqrt{10}}$$

$$= \frac{0}{\sqrt{10}}$$

$$\frac{|-5|}{\sqrt{10}} = \frac{5}{\sqrt{10}}$$

iii point C is equidistant & lies on y-axis

$$C = (0, 3\frac{1}{2})$$

iv D(3,5)

$\frac{1}{2} \times \text{base} \times \text{height}$

$$= \frac{1}{2} \times \frac{5}{\sqrt{10}} \times \sqrt{10}$$

$$h = d \sqrt{(1-2)^2 + (5-2)^2} = \sqrt{10}$$

$$= 2\frac{1}{2} \text{ units}^2$$