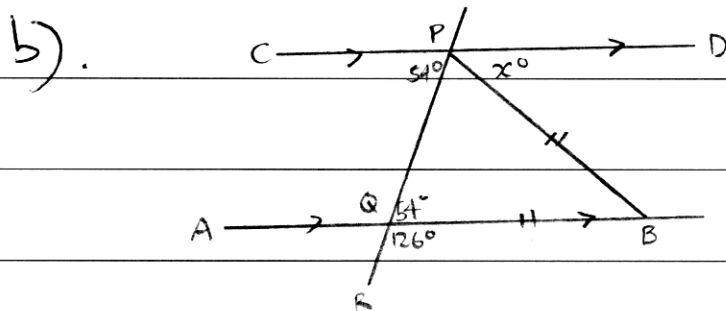


Q 3).

a) Compound Interest =  $\$P \left(1 + \frac{r}{100}\right)^n$   
 $= \$1000 \left(1 + \frac{3.5}{100}\right)^{20}$   
 $1000 (1.035)^{20}$   
 $= 1,989.79$  (2 dec. places).



Value of  $x^\circ$ :

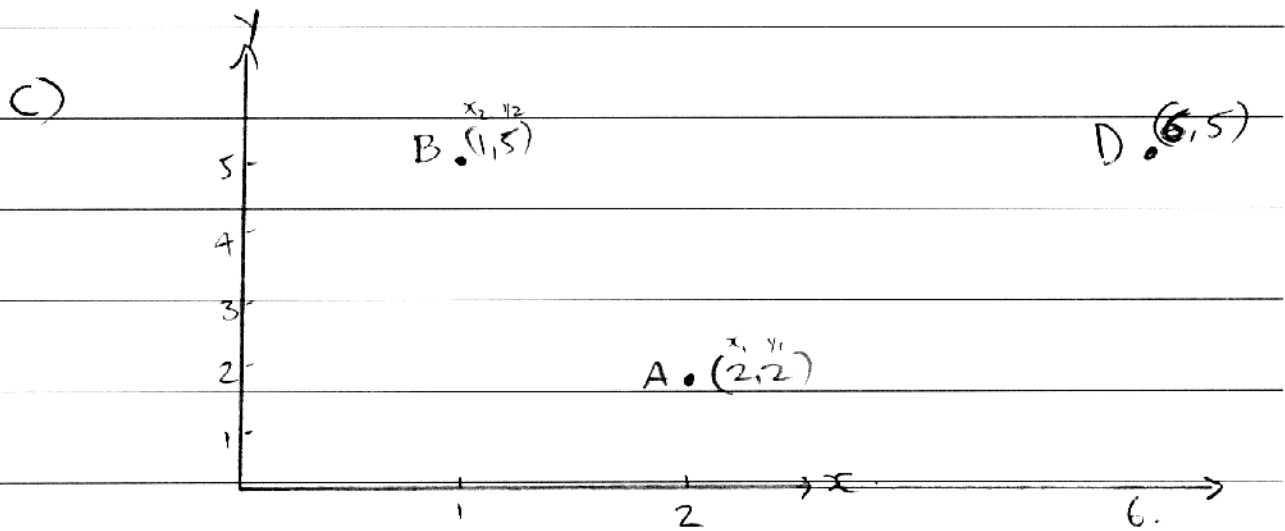
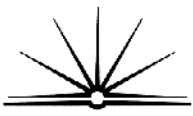
•  $\angle BQP = 180^\circ - 126^\circ \rightarrow$  (Corresponding angles)  
 $= 54^\circ$

•  $\angle CPQ = \angle BQP = 54^\circ$  (Alternate angles)

•  $\angle QPB = \angle PQB = 54^\circ$  ( $2\theta + x^\circ =$  Isosceles  $\Delta$ )  
(two sides equal,  $\therefore$

$\angle QPB = \angle PQB$ )

$\therefore x^\circ = 180^\circ - 54^\circ - 54^\circ = 72^\circ$



i) Midpoint of AB =

$$M = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$= \left( \frac{2 + 1}{2}, \frac{2 + 5}{2} \right)$$
$$= \left( \frac{3}{2}, \frac{7}{2} \right)$$

$$\text{Midpoint} = \left( 1\frac{1}{2}, 3.5 \right)$$

ii) Perpendicular =  $m_1, m_2 = -1$

line AB equation =  $y = mx + b$ .

$$m_1 = \frac{y_2 - y_1}{x_2 - x_1} = \left( \frac{5 - 2}{1 - 2} \right) = \frac{3}{-1} = -3 \therefore m_1 = -3.$$

$$y = mx + b \rightarrow \therefore y = -3x + b.$$

$$(2) = -3(2) + b.$$

$$2 = -6 + b$$

$$b = 8$$

$$\text{Line AB} = y = -3x + 8$$

$$\therefore \text{line} = y - y_1 = m(x - x_1) \quad \frac{y - 3\frac{1}{2}}{y - 3\frac{1}{2}} = \frac{\frac{1}{3}(x - 1\frac{1}{2})}{\frac{1}{3}x - \frac{1}{2}}$$

c)

iii) Point C, lies (equidistant)<sup>ies</sup> on the same

line : line AB =  $y = -3x + 8$ .

when  $y=0$ ,  $x = 2\frac{2}{3}$ .

∴ when  $x=0$

$$y = -3(0) + 8$$

$$= (0, 8)$$

iv)  $x - 3y + 9 = 0$ .

when  $y=5$   $x = x - 3(5) + 9 = 0$

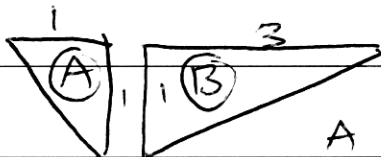
$$x - 15 + 9 = 0$$

$$x = 15 - 9 \therefore x = 6$$

Coordinates D is  $(6, 5)$

Marked on Diagram.

v). Area of Triangle ABD.



$$A = 1 \times 1 / 2$$

$$B = 3 \times 1 / 2$$

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

$$+ 1 \cdot \frac{1}{2} = 2 \text{ units sq.}$$