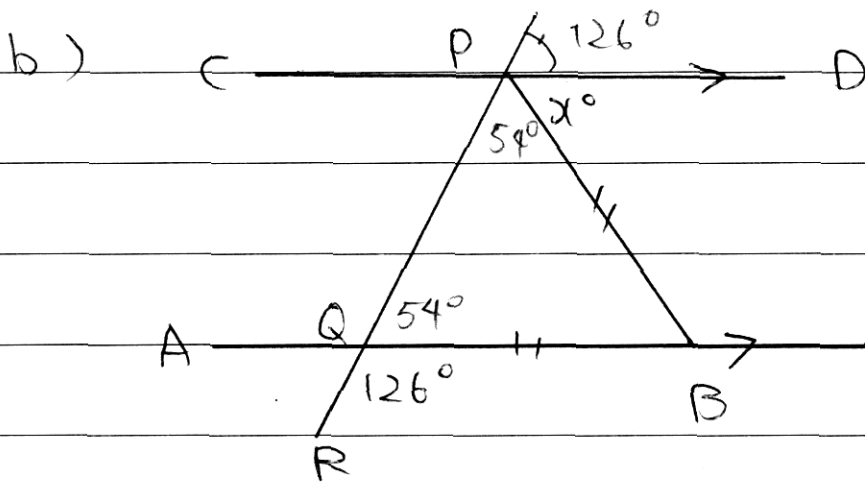


Question 3

a) $1000 \times \left(1 + \frac{3.5}{100}\right)^{20}$

$= \$1989.79$



$$\begin{aligned}\angle PQB &= 180 - 126^\circ \quad (\text{angles on straight line}) \\ &= 54^\circ\end{aligned}$$

$$\angle QPD = 126^\circ \quad (\text{corresponding } \angle \text{ on } \parallel \text{ line } CD \text{ and } AB)$$

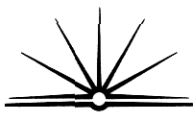
$$\angle QPB = 54^\circ \quad (\text{base } \angle \text{ s on isosceles } \triangle)$$

~~$180^\circ = 126^\circ + 54^\circ + x^\circ$ (angle sum on straight line)~~

$$180 = 54^\circ + 54^\circ + x^\circ$$

$$x^\circ = 72^\circ$$

$$(\text{co interior } \angle \text{ s' on } \parallel \text{ line})$$



$$c) i) \left\{ \frac{1+2}{2}, \frac{5+2}{2} \right.$$

$$(1.5, 3.5)$$

$$ii) \frac{5-2}{1-2} = -\frac{3}{1}$$

$$m = -3$$

$$m_1 x - 3 = -1 \quad m_1 = \frac{1}{3}$$

$$x - 3y + 9 = 0$$

~~By~~

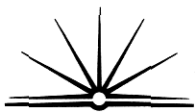
$$\frac{x}{3} - y + 3 = 0$$

$$\frac{x}{3} + 3 = y \quad y = mx + b$$

$$m = \frac{1}{3}$$

$$\therefore -3 \times \frac{1}{3} = -1$$

the equation has normal gradient



iii)

$$(x-1)^2 + (y-5)^2 = (x-2)^2 + (y-2)^2$$

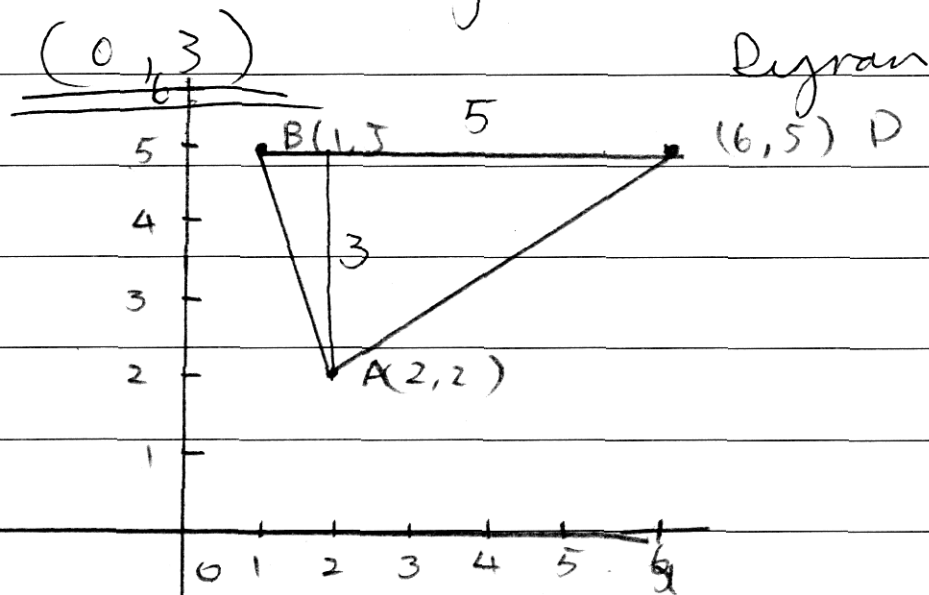
$$x=0 \quad 1 + (y-5)^2 = 4 + (y-2)^2$$

$$\cancel{y^2} - \cancel{10y} + 25 + 1 = 4 + \cancel{y^2} - \cancel{4y} + 4$$

$$26 = 8 + 6y$$

$$18 = 6y$$

$$y = 3$$



iv)

$$x - 3y + 9 = 0 \quad y = 5$$

$$x = 3y - 9 \quad y = 5$$

$$(6, 5)$$

$$x = 6$$

$$\text{v)} \quad \frac{1}{2} \times 5 \times 3 = \underline{\underline{7.5}}$$