



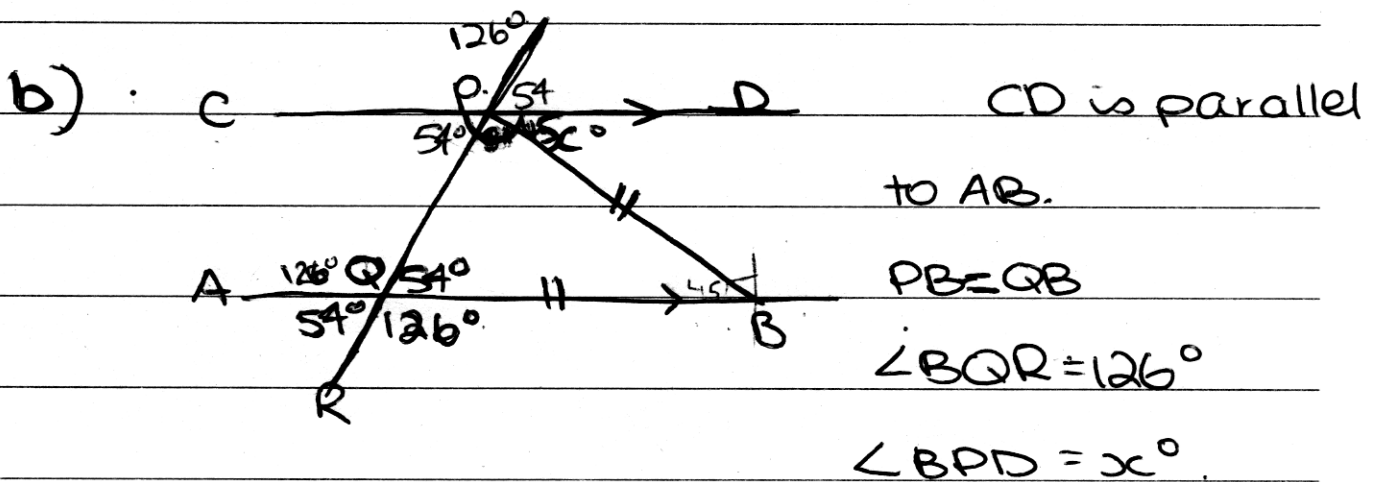
a) Josh invests \$1000 in a term deposit that earns 3.5% per annum compounded annually. What is the value of the investment at the end of 20 years.

$$P \left(1 + \frac{r}{100}\right)^n \quad P=1000, r=3.5, n=20$$

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

$$1000 = (1.035)^{20}$$

After 20 years = 1989.79 (2dp)



co-interior

$\angle Q = 126^\circ$ (straight line = 180° - vertically opposite)

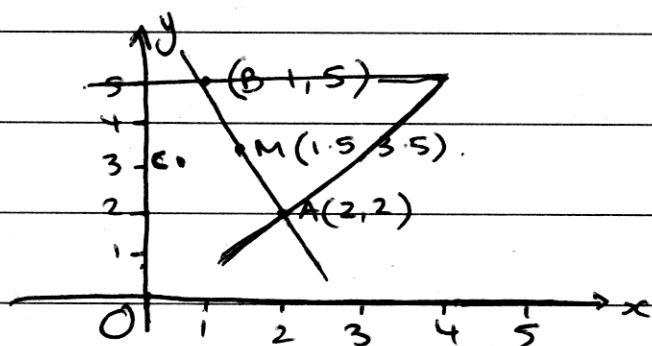
$\angle DPB = \angle QBP$ (SAS)

$$x = 45^\circ$$



$$A(x_1, y_1) \quad B(x_2, y_2)$$

c)



$$\textcircled{i} \text{ midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \quad \frac{y - y_1}{x - x_1}$$

$$= \left(\frac{2 + 1}{2}, \frac{2 + 5}{2} \right) \quad \frac{y - 2}{x - 2}$$
$$(1.5, 3.5) \quad \text{gradient} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\textcircled{ii} \quad y - y_1 = m(x - x_1) \quad = \frac{5 - 2}{1 - 2}$$
$$y - 2 = \frac{1}{2}(x - 2) \quad = \frac{3}{-1}$$

$$= y - 2 = \frac{3}{-1}(x - 2)$$

$$y - 2 = \frac{3}{2}(x - 2) \quad = y - 2 = -3(x - 2)$$

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

iii) find the co-ordinates of the point C that lies on the y axis and is equidistant from AB.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{1 + 9}$$

$$d = \sqrt{(2 - 2)^2 + (5 - 2)^2} = 3.16 \text{ units}$$



$$(iv) \frac{1}{2} \text{ box.}$$

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

$$(v) \frac{1}{2} \text{ box.}$$

$$\frac{1}{2} 4.5 \times 4$$

= units