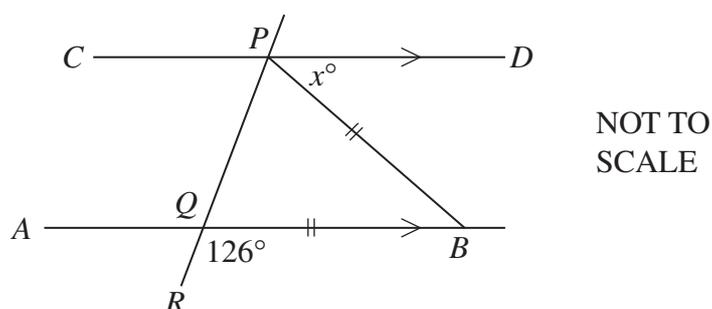


**Question 3** (12 marks) Use a SEPARATE writing booklet.

- (a) Josh invests \$1000 in a term deposit that earns 3.5% per annum compounded annually. 2

What is the value of the investment at the end of 20 years?

- (b) 3

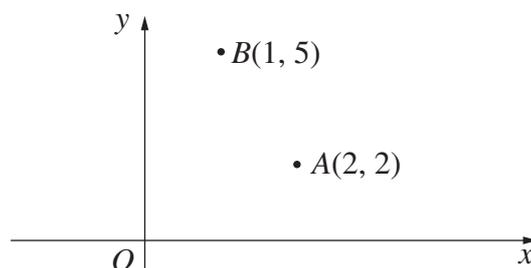


In the diagram,  $CD$  is parallel to  $AB$ ,  $PB = QB$ ,  $\angle BQR = 126^\circ$  and  $\angle BPD = x^\circ$ .

Copy or trace this diagram into your writing booklet.

Find the value of  $x$ , giving complete reasons.

- (c) NOT TO SCALE



The diagram shows two points  $A(2, 2)$  and  $B(1, 5)$  on the number plane.

Copy the diagram into your writing booklet.

- (i) Find the coordinates of  $M$ , the midpoint of  $AB$ . 1
- (ii) Show that the equation of the perpendicular bisector of  $AB$  is  $x - 3y + 9 = 0$ . 2
- (iii) Find the coordinates of the point  $C$  that lies on the  $y$  axis and is equidistant from  $A$  and  $B$ . 1
- (iv) The point  $D$  lies on the intersection of the line  $y = 5$  and the perpendicular bisector  $x - 3y + 9 = 0$ . Find the coordinates of  $D$ , and mark the position of  $D$  on your diagram in your writing booklet. 1
- (v) Find the area of triangle  $ABD$ . 2