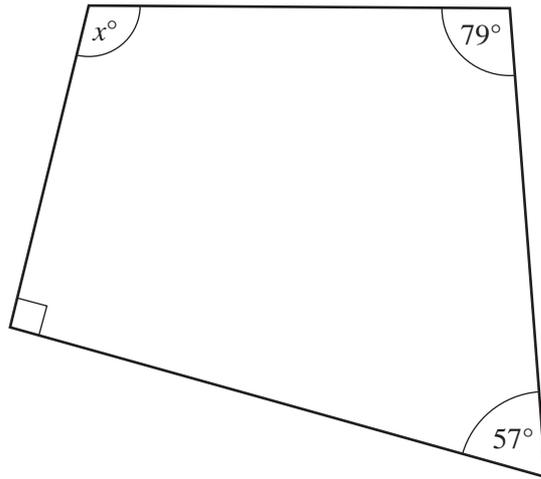




2

1



NOT TO  
SCALE

The diagram shows a quadrilateral.  
Work out the value of  $x$ .

Answer  $x =$  ..... [1]

---

2 Caroline changed £200 into New Zealand dollars (NZ\$).  
The exchange rate was £1 = NZ\$2.56 .

How many New Zealand dollars did she receive?

Answer NZ\$ ..... [1]

---

- 3 Francis recorded a temperature of  $-4^{\circ}\text{C}$  on Sunday.  
By Monday it had gone down by  $3^{\circ}\text{C}$ .

(a) Find the temperature on Monday.

Answer(a) .....  $^{\circ}\text{C}$  [1]

(b) On Tuesday the temperature was  $-1^{\circ}\text{C}$ .

Find the change in temperature between Monday and Tuesday.

Answer(b) .....  $^{\circ}\text{C}$  [1]

---

- 4 The distance from the Sun to the planet Saturn is 1 429 400 000 kilometres.

Write this distance in standard form, correct to 3 significant figures.

Answer ..... km [2]

---

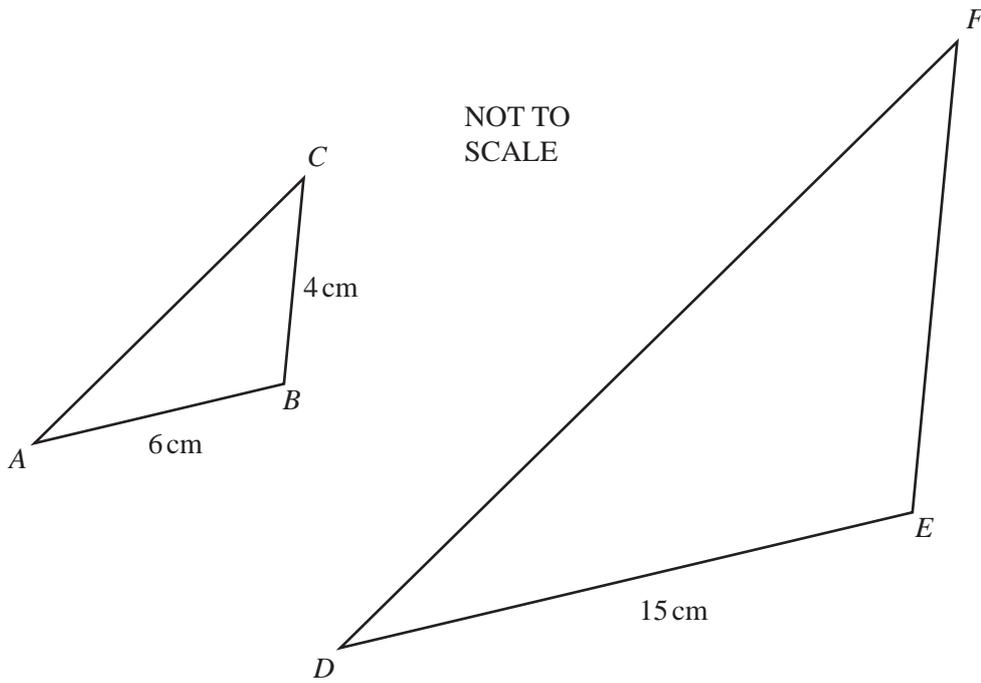
- 5 A factory makes doors that are each 900 millimetres wide, correct to the nearest millimetre.

Complete the statement about the width,  $w$  millimetres, of each door.

Answer .....  $\leq w <$  ..... [2]

---

6



The triangles  $ABC$  and  $DEF$  are similar.  
 $AB = 6$  cm,  $BC = 4$  cm and  $DE = 15$  cm.

Calculate  $EF$ .

Answer  $EF =$  ..... cm [2]

---

7 Maria puts \$600 into a bank account for 3 years at a rate of 3.4% per year **compound** interest.  
Calculate how much will be in the account at the end of the 3 years.

Answer \$ ..... [3]

---

8 (a) Factorise completely.

$$8pq + 12pr$$

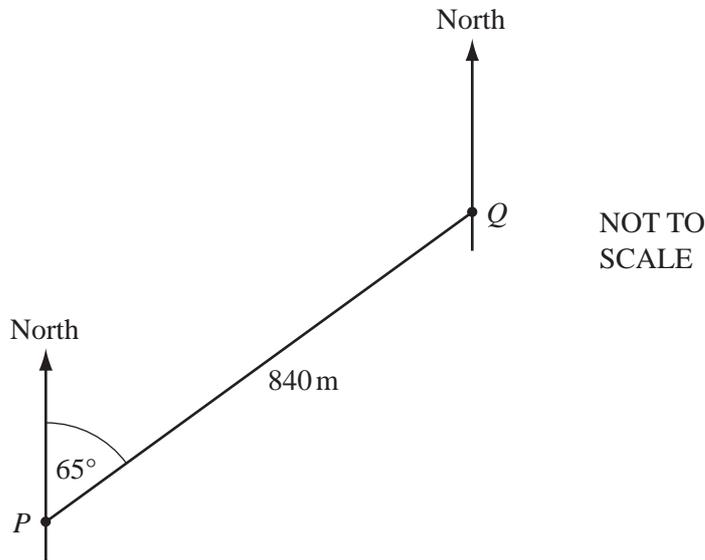
Answer(a) ..... [2]

(b) Use your answer to **part (a)** to make  $p$  the subject of the formula below.

$$s = 8pq + 12pr$$

Answer(b)  $p =$  ..... [1]

9



The diagram shows a straight road  $PQ$ .  
 $PQ = 840\text{m}$  and the bearing of  $Q$  from  $P$  is  $065^\circ$ .

(a) Work out the bearing of  $P$  from  $Q$ .

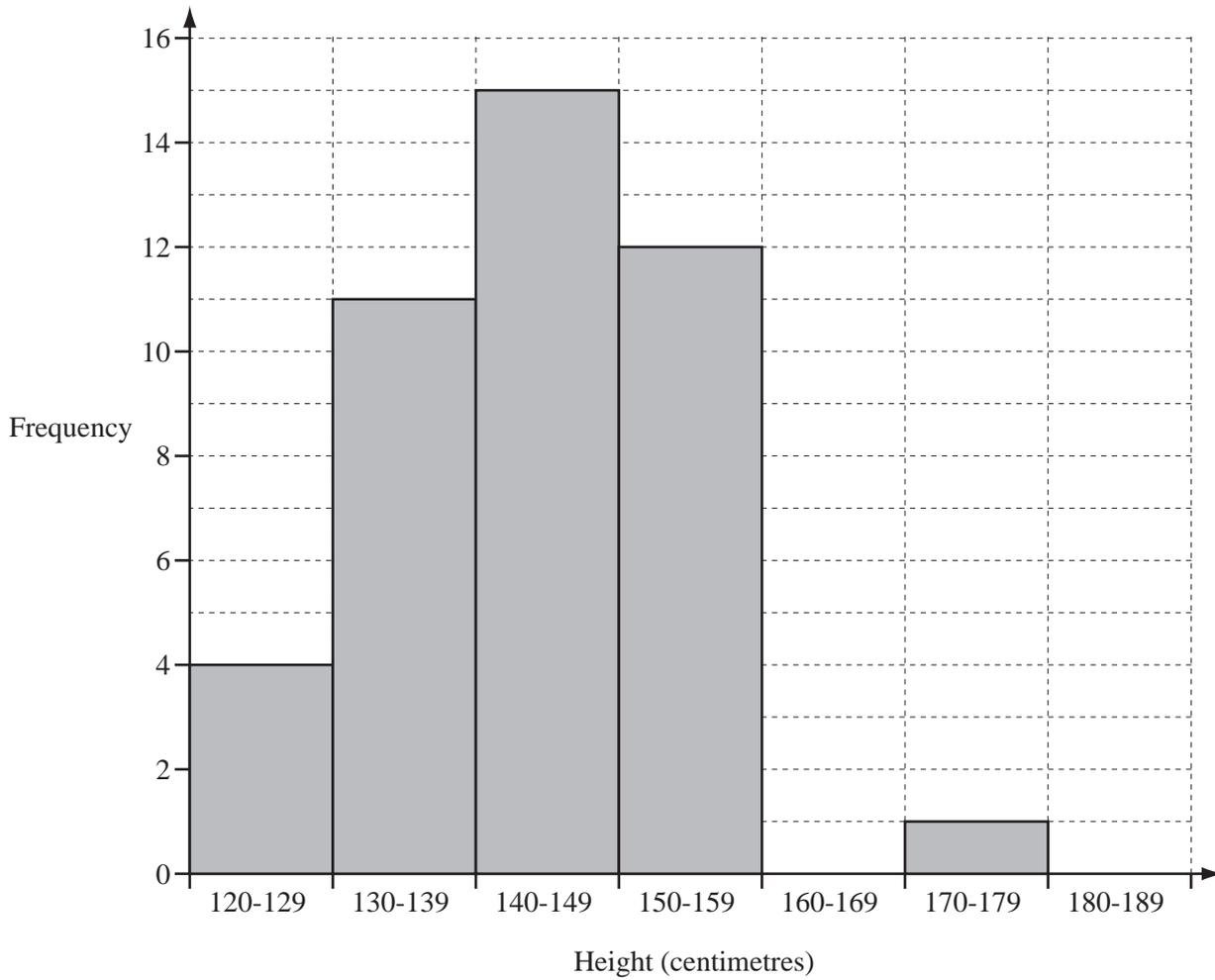
Answer(a) ..... [1]

(b) Calvin walks  $\frac{4}{7}$  of the distance from  $P$  to  $Q$ .

How far is he **from**  $Q$ ?

Answer(b) ..... m [2]

- 10 The heights of 43 children are measured to the nearest centimetre. Braima draws a bar chart from this information.



A child is chosen at random.

Write down, as a fraction, the probability that the child will be

- (a) in the group 140 – 149 cm,

Answer(a) ..... [1]

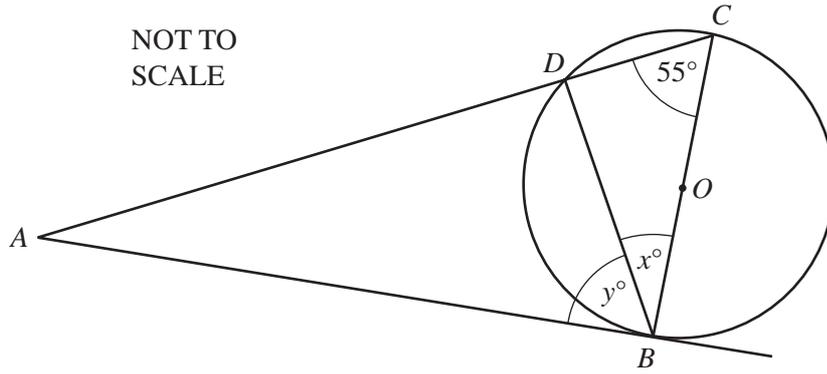
- (b) less than 160 cm,

Answer(b) ..... [1]

- (c) in the group 160 – 169 cm.

Answer(c) ..... [1]

11



The diagram shows a circle, centre  $O$ , with diameter  $BC$ .  
 $AB$  is a tangent to the circle at  $B$  and angle  $BCD = 55^\circ$ .  
 A straight line from  $A$  meets the circle at  $D$  and  $C$ .

Calculate the value of

(a)  $x$ ,

Answer(a)  $x =$  ..... [2]

(b)  $y$ .

Answer(b)  $y =$  ..... [1]

12 (a) Write down the value of  $x$  when

(i)  $5^x \div 5^2 = 5^4$ ,

Answer(a)(i)  $x =$  ..... [1]

(ii)  $\frac{1}{49} = 7^x$ .

Answer(a)(ii)  $x =$  ..... [1]

(b) Write down the value of  $3p^0$ .

Answer(b) ..... [1]

13 Dominic, Esther, Flora and Galena shared a pizza.

- (a) Dominic ate  $\frac{1}{5}$  of the pizza and Esther ate  $\frac{2}{7}$  of the pizza.

Show that  $\frac{18}{35}$  of the pizza remained.

Do not use your calculator and show all your working.

*Answer (a)*

[2]

- (b) Flora ate  $\frac{2}{3}$  of the **pizza that remained**.

Find the fraction of the pizza that was left for Galena.

*Answer(b)* ..... [2]

14

$$\frac{9.6 \times 7.8 - 0.53 \times 86}{4.95}$$

- (a) (i) Rewrite this calculation with each number written correct to 1 significant figure.

*Answer(a)(i)*

[1]

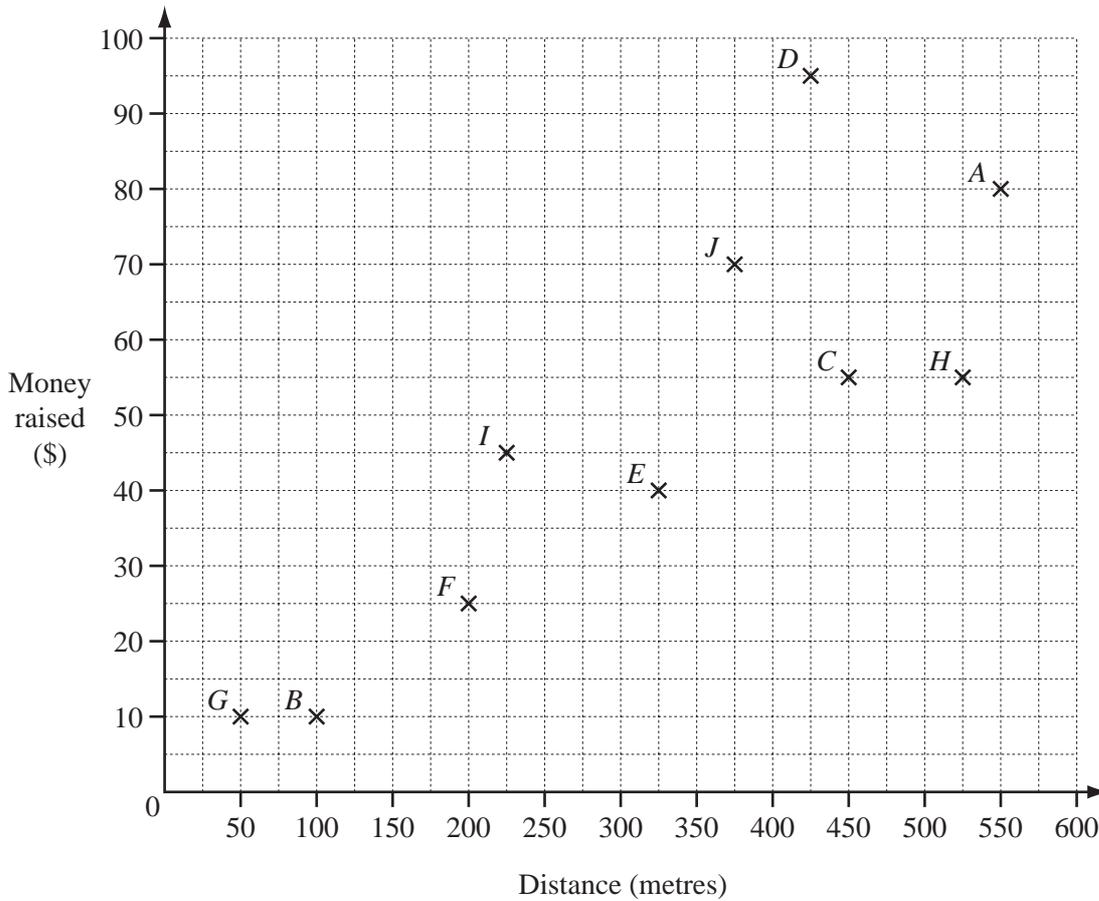
- (ii) Work out the answer to your calculation in **part(a)(i)**.  
Do not use a calculator and show all your working.

*Answer(a)(ii)* ..... [2]

- (b) Use your calculator to work out the correct answer to the original calculation.

*Answer(b)* ..... [1]

- 15 Some children took part in a sponsored swim to raise money for charity. The scatter diagram shows the results for 10 of the children.



- (a) (i) How much further did *A* swim than *J*?

Answer(a)(i) ..... m [1]

- (ii) How much more money did *D* raise than *F*?

Answer(a)(ii) \$ ..... [1]

- (b) The results for 2 more children are given in the table below.

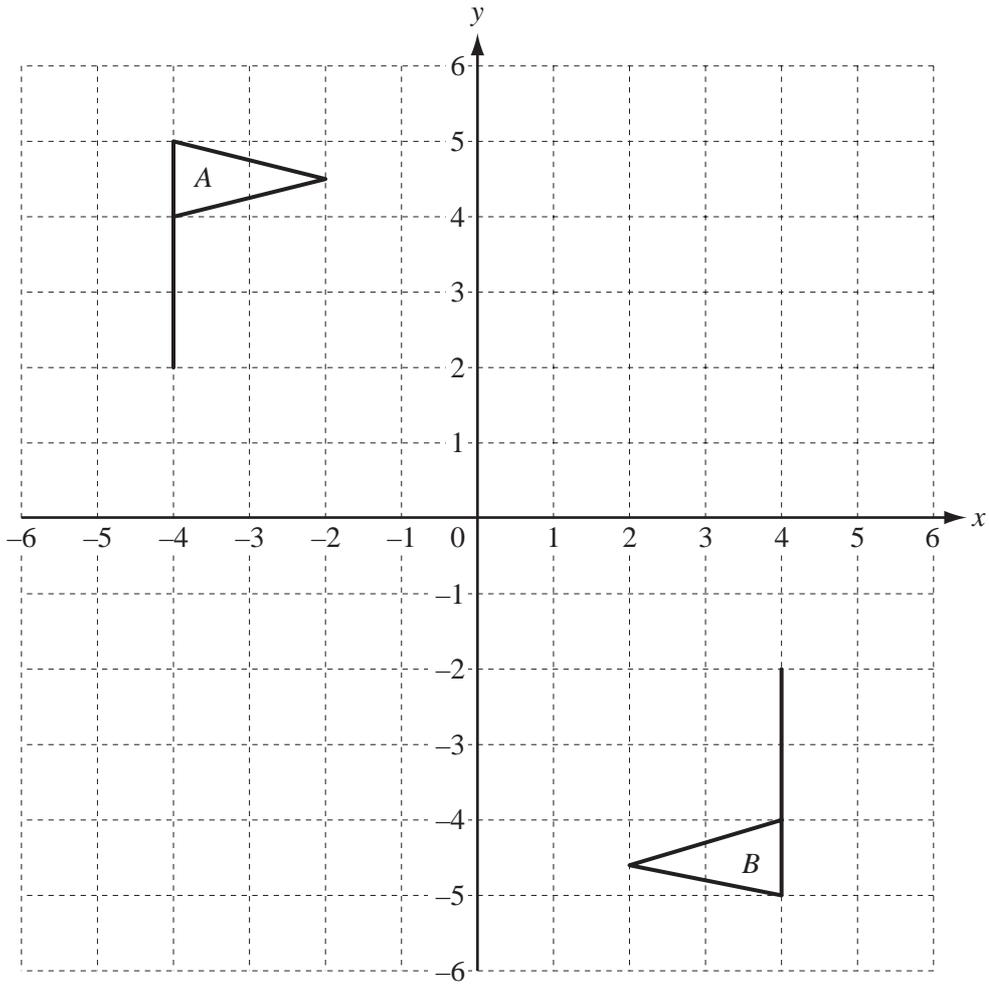
Child	Distance (m)	Money raised (\$)
<i>K</i>	125	35
<i>L</i>	475	80

Plot the results for *K* and *L* on the scatter diagram. [1]

- (c) What type of correlation does the scatter diagram show?

Answer(c) ..... [1]

16 Flags *A* and *B* are shown on the grid.



(a) Describe fully the **single** transformation which maps flag *A* onto flag *B*.

Answer(a) .....

..... [3]

(b) On the grid, draw the translation of flag *A* by the vector  $\begin{pmatrix} 5 \\ -3 \end{pmatrix}$ . [2]

17

$$\vec{AB} = \begin{pmatrix} 3 \\ -3 \end{pmatrix}$$

$$\vec{AC} = \begin{pmatrix} -5 \\ 0 \end{pmatrix}$$

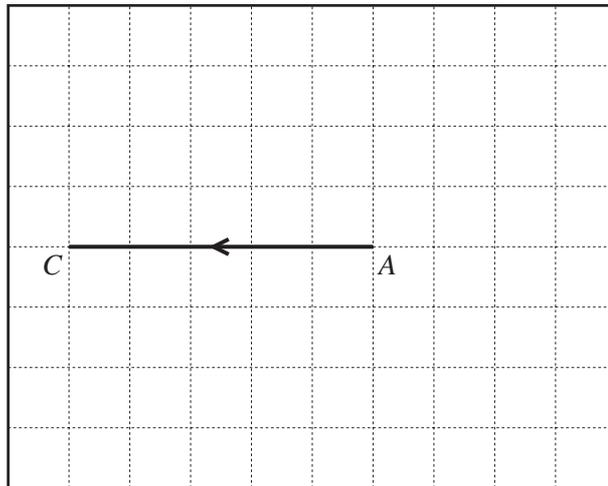
(a) Calculate  $\vec{AB} + 3\vec{AC}$ .

Answer(a)  $\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [2]

(b) Write down  $\vec{BA}$ .

Answer(b)  $\vec{BA} = \begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

(c)  $\vec{AC}$  is drawn on the grid below.

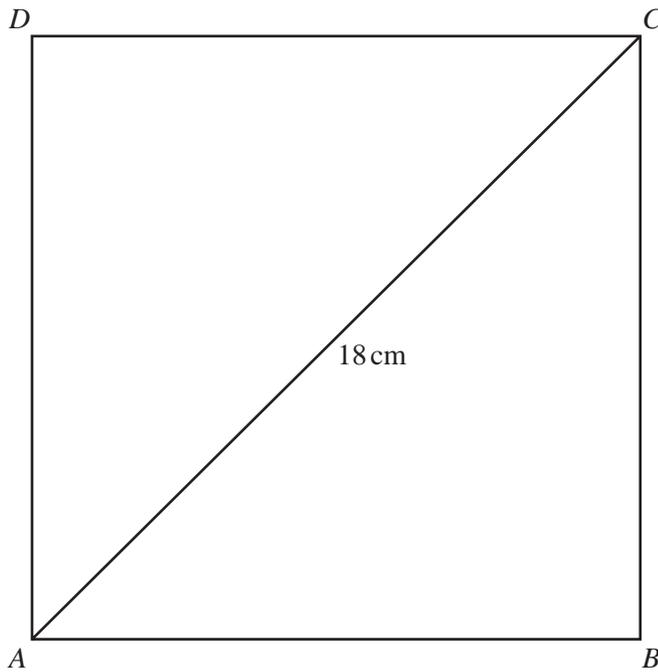
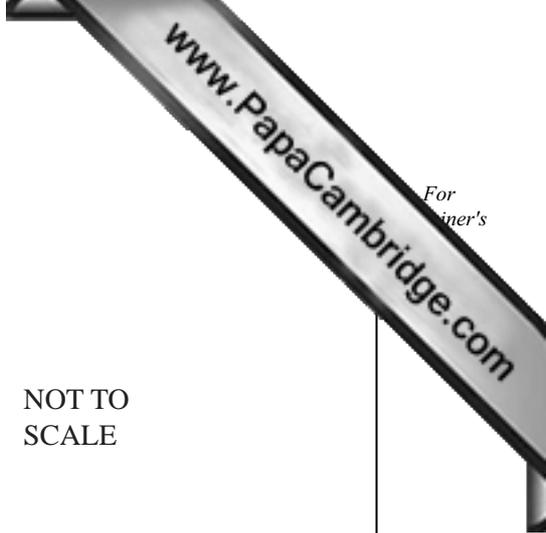


(i) On the grid, draw  $\vec{AB}$ . [1]

(ii) Write down the obtuse angle between  $\vec{AB}$  and  $\vec{AC}$ .

Answer(c)(ii) ..... [1]

Question 18 is printed on the next page.



NOT TO SCALE

The diagram shows a square  $ABCD$ .  
 The length of the diagonal  $AC$  is 18 cm.

(a) Calculate

(i) the length of the side of the square,

Answer(a)(i) ..... cm [2]

(ii) the area of the square.

Answer(a)(ii) .....  $\text{cm}^2$  [2]

(b)  $A, B, C$  and  $D$  lie on a circle with diameter  $AC$ .

Calculate the area of this circle.

Answer(b) .....  $\text{cm}^2$  [2]

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