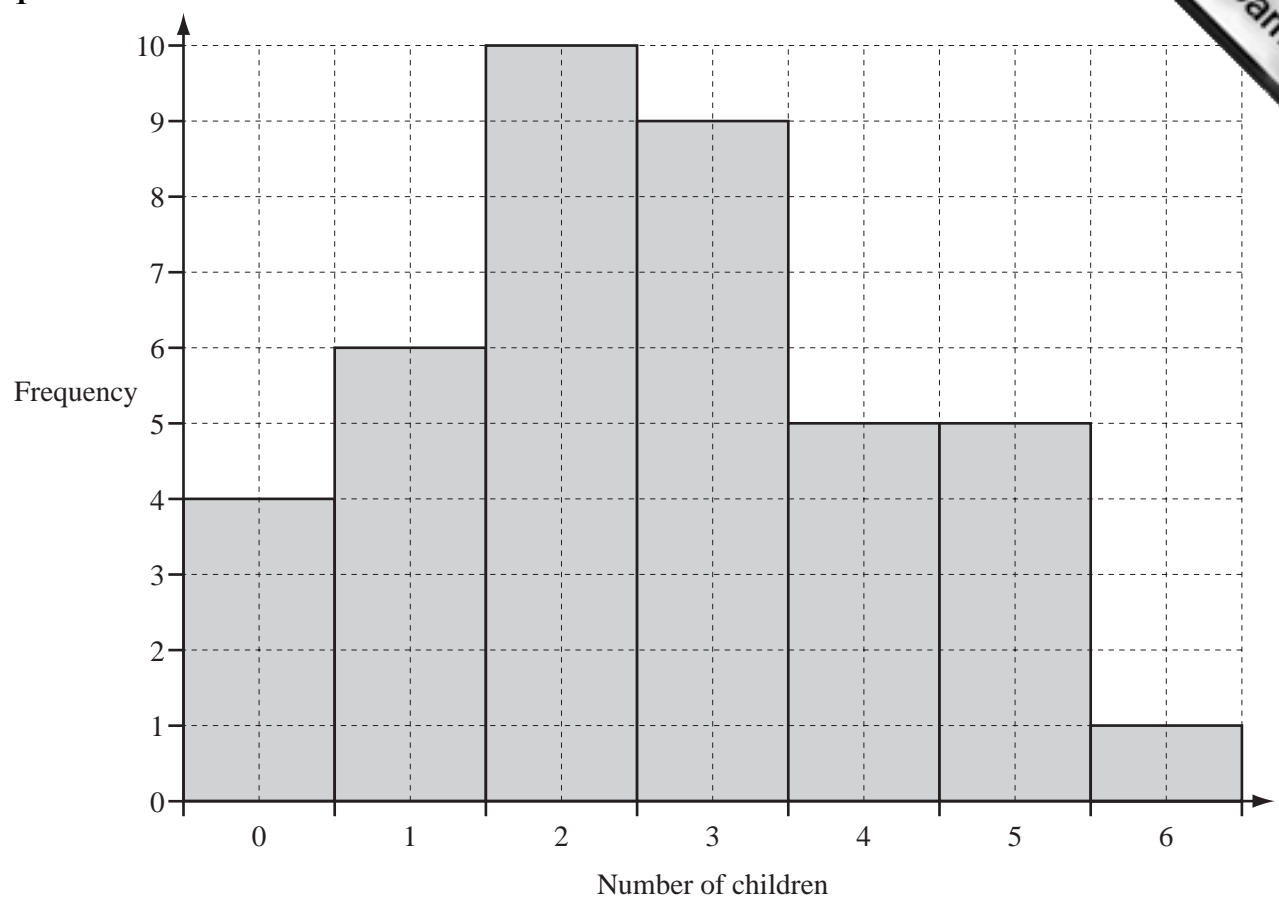


1



The number of children in each of 40 families was recorded.
The bar chart shows the results.

(a) Complete the frequency table.

Number of children	0	1	2	3	4	5	6
Frequency	4	6					

[3]

(b) Find

(i) the mode,

Answer(b)(i) [1]

(ii) the median,

Answer(b)(ii) [2]

(ii) the mean.

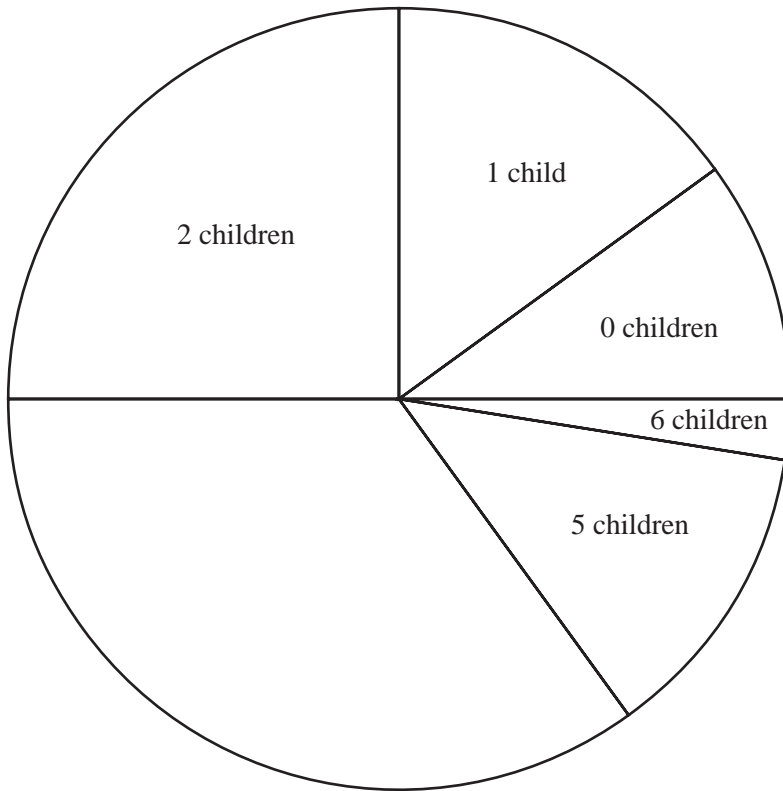
Answer(b)(iii) [3]

(c) A pie chart showing the information has been started.

(i) Calculate the angles of the sectors for 3 and 4 children.

Answer(c)(i) , [3]

(ii) Complete the pie chart accurately.



[1]

2 Eduardo lives in Argentina and travels to Uruguay for a holiday.

(a) His flight from Buenos Aires to Montevideo takes 55 minutes.
The plane departs at 17 35.

(i) Write down the arrival time.

Answer(a)(i) [1]

(ii) The distance between Buenos Aires and Montevideo is 230 km.

Calculate the average speed of the plane.

Answer(a)(ii) km/h [3]

(b) At the airport, Eduardo changed some Argentine pesos (ARS).
He received 9121 Uruguay pesos (UYU).

(i) The exchange rate was ARS 1 = UYU 6.515.

Calculate how many Argentine pesos Eduardo changed.

Answer(b)(i) ARS [2]

(ii) Eduardo spent 1890 Uruguay pesos on meals.

Calculate this as a percentage of the UYU 9121.

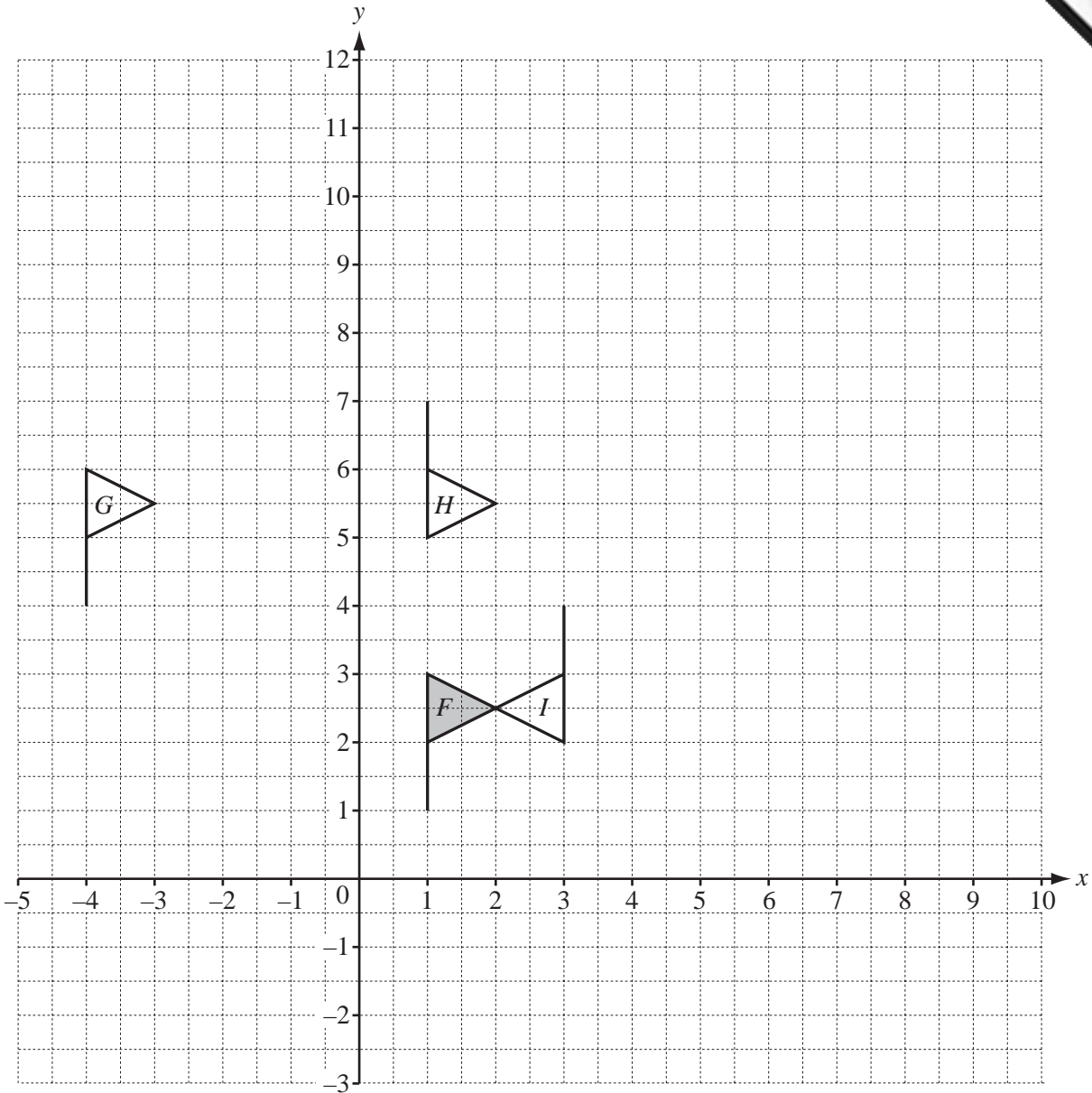
Answer(b)(ii) % [1]

(iii) At the end of his holiday, Eduardo has UYU 610 remaining.
He changes this into Argentine pesos when the exchange rate is UYU 1 = ARS 0.149.

Calculate how much Eduardo receives in Argentine pesos.
Give your answer to the nearest whole number.

Answer(b)(iii) ARS [2]

3



(a) Describe fully the **single** transformation that maps

(i) flag *F* onto flag *G*,

Answer(a)(i) [2]

(ii) flag *F* onto flag *H*,

Answer(a)(ii) [2]

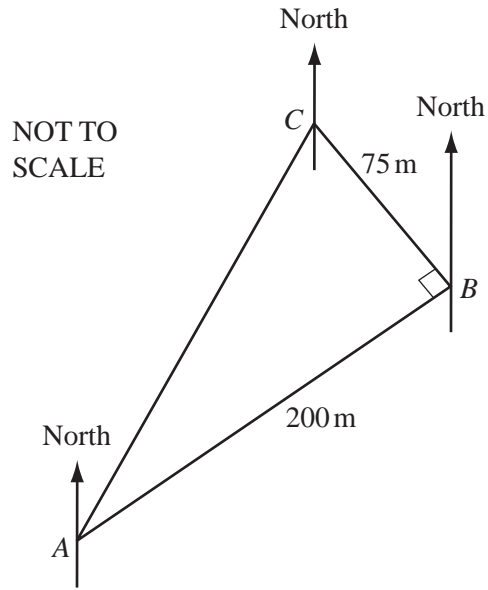
(iii) flag *F* onto flag *I*.

Answer(a)(iii) [3]

(b) On the grid, draw

(i) the reflection of flag *F* in the *y*-axis, [2]

(ii) the enlargement of flag *F*, centre (0, 0) and scale factor 4. [2]



Dariella walks 200 m from A to B .
She then turns through 90° and walks 75 m from B to C .

(a) Calculate

(i) the distance AC ,

Answer(a)(i) m [2]

(ii) angle CAB .

Answer(a)(ii) Angle $CAB =$ [2]

(b) The bearing of B from A is 065° .

Find the bearing of

(i) C from A ,

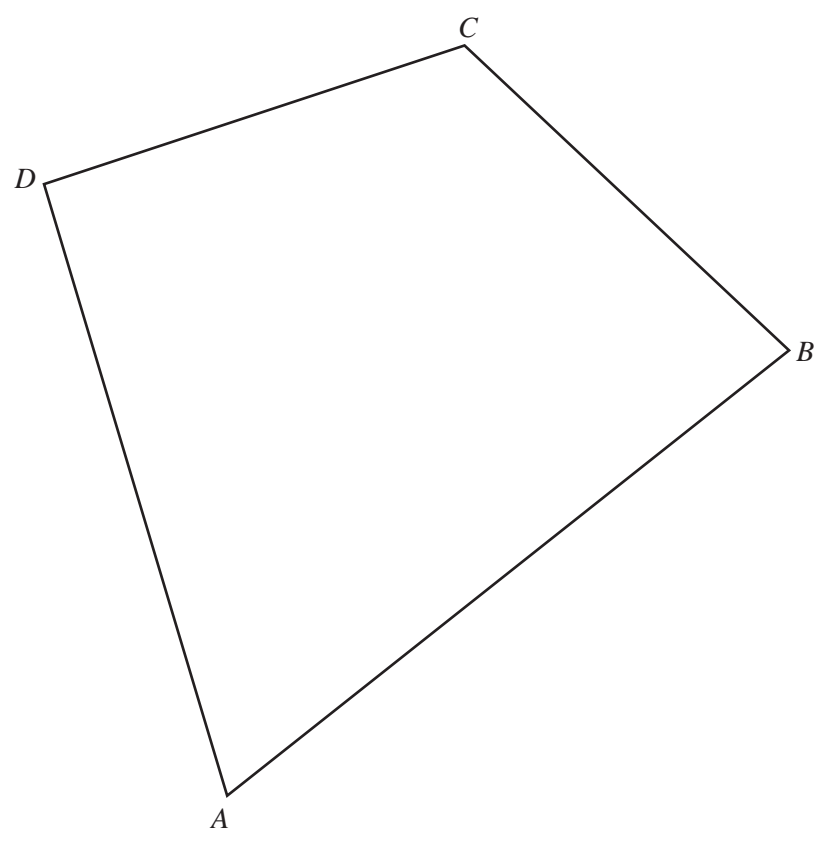
Answer(b)(i) [1]

(ii) A from C ,

Answer(b)(ii) [1]

(iii) C from B .

Answer(b)(iii) [2]



The diagram shows a quadrilateral $ABCD$.

- (a) Using a straight edge and compasses only, construct
 - (i) the perpendicular bisector of AB , [2]
 - (ii) the bisector of angle ADC . [2]

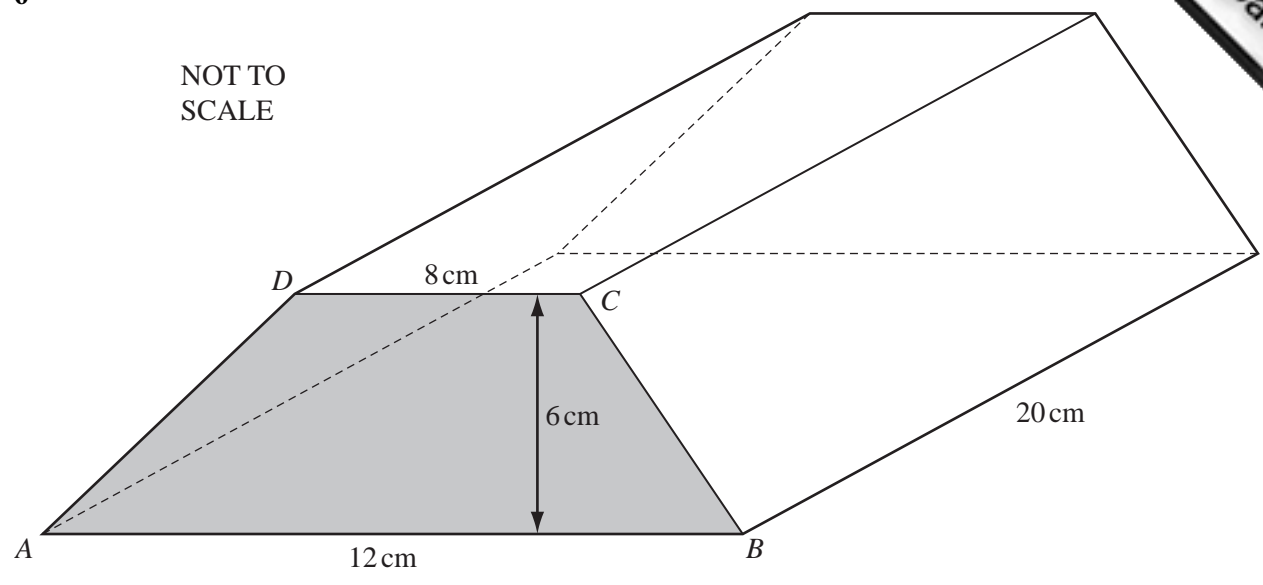
- (b) Draw accurately the locus of points, inside the quadrilateral, that are 2 cm from BC . [2]

- (c) Shade the region, inside the quadrilateral, which is
 - nearer to B than to A
 - and** nearer to DC than to DA
 - and** more than 2 cm from BC . [1]

Blank area for drawing and shading.

6

NOT TO
SCALE



The diagram shows a prism of length 20 cm.
The cross-section of the prism is a trapezium, $ABCD$, with AB parallel to DC .
 $AB = 12$ cm, $DC = 8$ cm and the perpendicular distance between AB and DC is 6 cm.

- (a) Calculate
 - (i) the area of the trapezium $ABCD$,

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

- (ii) the volume of the prism.

Answer(a)(ii) cm^3 [1]

(b) The prism is solid and made of brass.

(i) One cubic centimetre of brass has a mass of 8.5 grams.

Calculate the mass of the prism.
Give your answer in kilograms.

Answer(b)(i) kg [2]

(ii) Brass costs \$2.26 for one kilogram.

How much will the brass cost to make this prism?
Give your answer correct to 2 decimal places.

Answer(b)(ii) \$ [2]

- 7 Alex has d dollars to spend.
He buys a book which costs \$9 less than 2 times d .

(a) Write down an algebraic expression, in terms of d , for the cost of the book.

Answer(a) \$ [2]

(b) The actual cost of the book is \$7.80.

Find the value of d .

Answer(b) $d =$ [2]

(c) How much does Alex have left after buying the book?

Answer(c) \$ [1]

- 8 The area, A , of a sector of a circle of radius r is given by the formula below.

$$A = \frac{\pi r^2}{5}$$

- (a) Calculate the area when the radius is 7.5 cm.

Answer(a) cm² [2]

- (b) Make r the subject of the formula.

Answer(b) $r =$ [3]

- (c) Calculate r when $A = 4.8 \text{ cm}^2$.

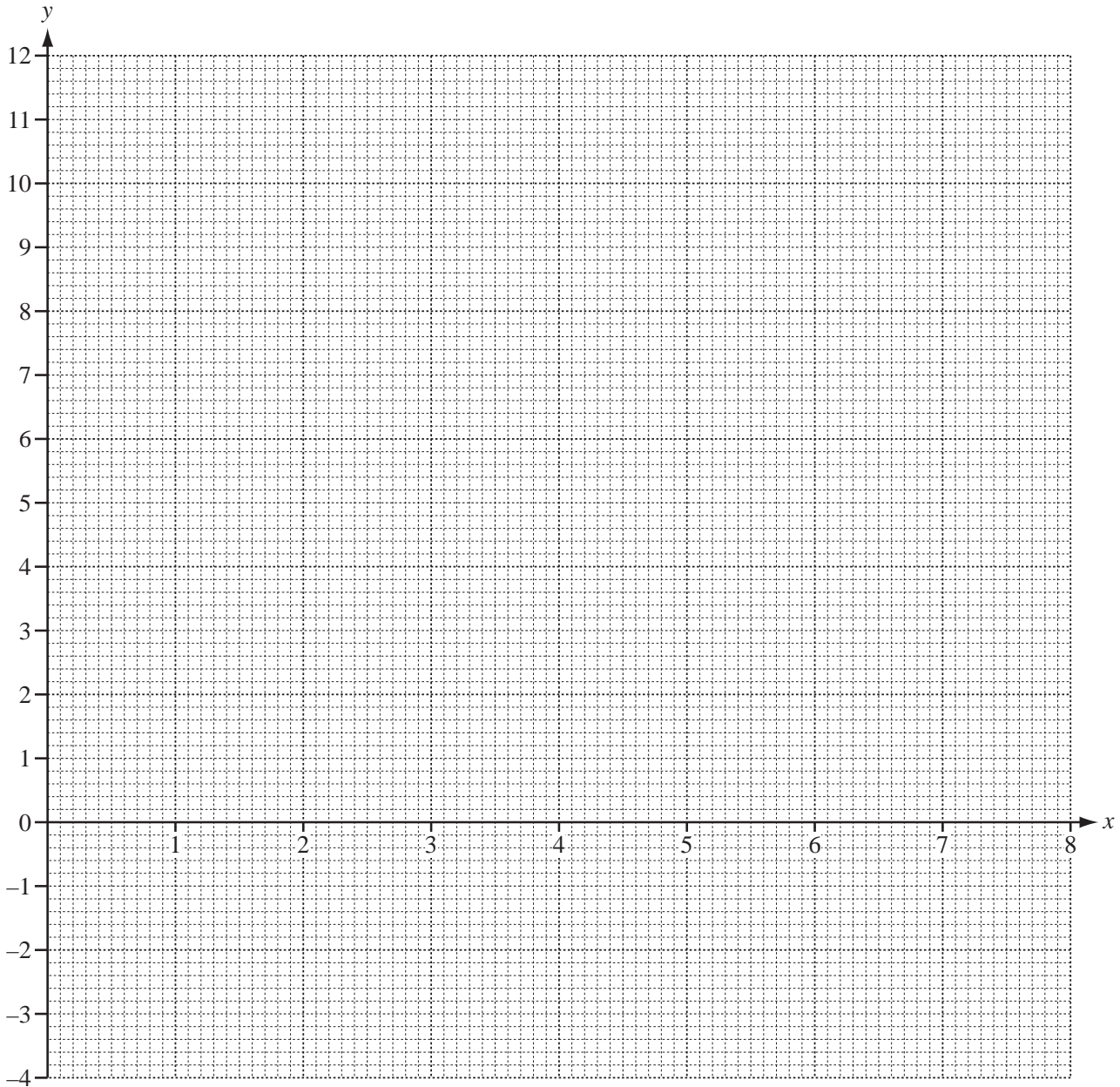
Answer(c) $r =$ cm [2]

9 (a) (i) Complete the table for $y = 12 - x^2$.

x	0	1	2	3	4
y	12	11			-4

[2]

(ii) On the grid, draw the graph of $y = 12 - x^2$ for $0 \leq x \leq 4$.



[3]

(iii) Use your graph to solve the equation $12 - x^2 = 0$.

Answer (a)(iii) $x =$ [1]

- (b) (i) Complete the table for $y = \frac{12}{x}$, $x \neq 0$.

x	1	2	3	4	5	6	7	8
y	12	6	4		2.4		1.7	

[3]

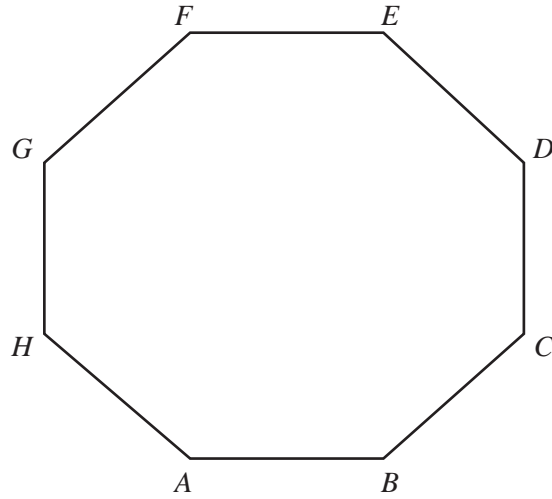
- (ii) On the grid opposite, draw the graph of $y = \frac{12}{x}$ for $1 \leq x \leq 8$.

[3]

- (c) Write down the co-ordinates of the points of intersection of the two graphs.

Answer(c) (..... ,), (..... ,) [2]

10



NOT TO SCALE



ABCDEFGH is a regular octagon.

(a) Show that angle $BCD = 135^\circ$.

Answer (a)

[2]

(b) Find

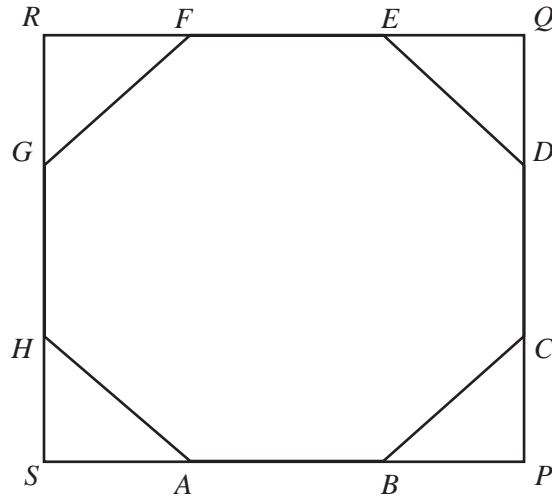
(i) angle DEB ,

Answer(b)(i) Angle $DEB = \dots\dots\dots$ [1]

(ii) angle FEB .

Answer(b)(ii) Angle $FEB = \dots\dots\dots$ [1]

(c)



NOT TO SCALE

The sides of the octagon are extended to form the square $PQRS$.
 The length of each side of the octagon is 12 cm and the length of BP is 8.485 cm.

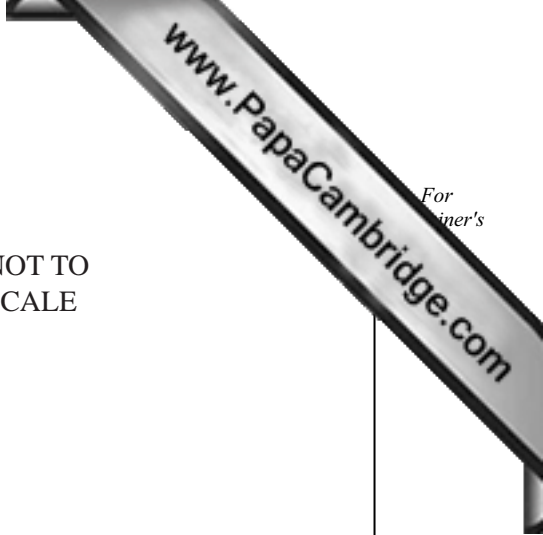
Calculate the area of

(i) triangle BPC ,

Answer(c)(i) cm^2 [2]

(ii) the octagon $ABCDEFGH$.

Answer(c)(ii) cm^2 [3]



11 (a) (i)

0, 1, 1, 2, 3, 5, 8,

This sequence has the rule:

After the first two terms, any term is the sum of the two previous terms.

The first two terms are 0 and 1,
 the 3rd term is $0 + 1 = 1$,
 the 4th term is $1 + 1 = 2$,
 the 5th term is $1 + 2 = 3$ and so on.

Show that the 8th term is 13.

Answer(a)(i) [1]

(ii) Each of the following sequences have the same rule as **part (a)(i)**.

For each sequence write down the missing terms.

2, 5, 7, , [1]

4, 3, 7, , [1]

5, 2, , [1]

0, , 3, [1]

1, , , 9, [1]

..... , , 5, 7 [1]

(b) For the following sequences find the next term and the n th term.

(i) 1, 3, 5, 7, 9, n th term = [3]

(ii) 1, 4, 9, 16, 25, n th term = [2]

(iii) 1, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, n th term = [2]