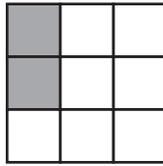


- 1 Shade two more squares so that this pattern has rotational symmetry of order 2.



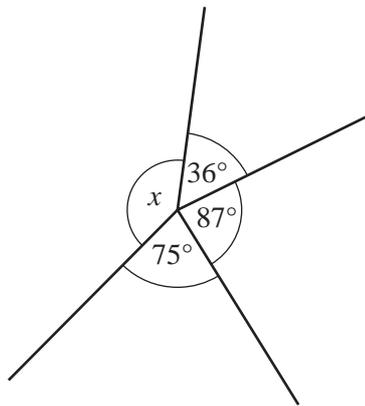
[1]

- 2 Write three hundredths as a decimal.

Answer

[1]

3



NOT TO
SCALE

- (a) Find angle x .

Answer(a) Angle $x = \dots\dots\dots$ [1]

- (b) What type of angle is x ?

Answer(b)

[1]

4 A football ground seats 28 750 people when it is full.

(a) Write 28 750 correct to the nearest thousand.

Answer(a) [1]

(b) One day 17 250 people attended a football match.

Work out 17 250 as a percentage of 28 750.

Answer(b) % [1]

5 Solve the following equations.

(a) $x + 9 = 16$

Answer(a) $x =$ [1]

(b) $6y = 27$

Answer(b) $y =$ [1]

6 On a mountain, the temperature decreases by 6.5°C for every 1000 metres increase in height.
At 2000 metres the temperature is 10°C .

Find the temperature at 6000 metres.

Answer $^{\circ}\text{C}$ [2]

7 Simplify the following expression.

$$3j - 4k - 2 + 5j + k - 6$$

Answer [2]

8 The train fare from Bangkok to Chiang Mai is 768 baht.
The exchange rate is £1 = 48 baht.

Calculate the train fare in pounds (£).

Answer £ [2]

9 Use your calculator to find the value of

$$\frac{8.1^2 + 6.2^2 - 4.3^2}{2 \times 8.1 \times 6.2}$$

Answer [2]

10 (a) Write 230 000 in standard form.

Answer(a) [1]

(b) Write 4.8×10^{-4} as an ordinary number.

Answer(b) [1]

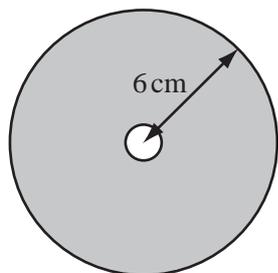
11 Write down all your working to show that the following statement is correct.

$$\frac{1 + \frac{8}{9}}{2 + \frac{1}{2}} = \frac{34}{45}$$

Answer

[2]

12



NOT TO
SCALE

The diagram shows a circular disc with radius 6 cm.
In the centre of the disc there is a circular hole with radius 0.5 cm.

Calculate the area of the shaded section.

Answer cm^2 [3]

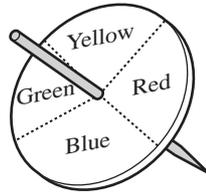
- 13 (a) Factorise $9y + 12$.

Answer(a) [1]

- (b) Expand $a(a^2 - 7)$.

Answer(b) [2]

- 14 Ying spins a spinner 75 times.
The table shows her results.



Colour	Red	Blue	Green	Yellow
Frequency	17	24	20	14

- (a) Write down the relative frequency of the spinner stopping on blue.

Answer(a) [1]

- (b) Tony spins the **same** spinner 450 times.

Find the expected number of times the spinner stops on yellow.

Answer(b) [2]

- 15 The table shows how 45 students each travel to college.

Method of travel	Walk	Bus	Cycle
Frequency	20	18	7

This information can be displayed in a pie chart.

- (a) Show that the sector angle for students who walk is 160° .

Answer(a)

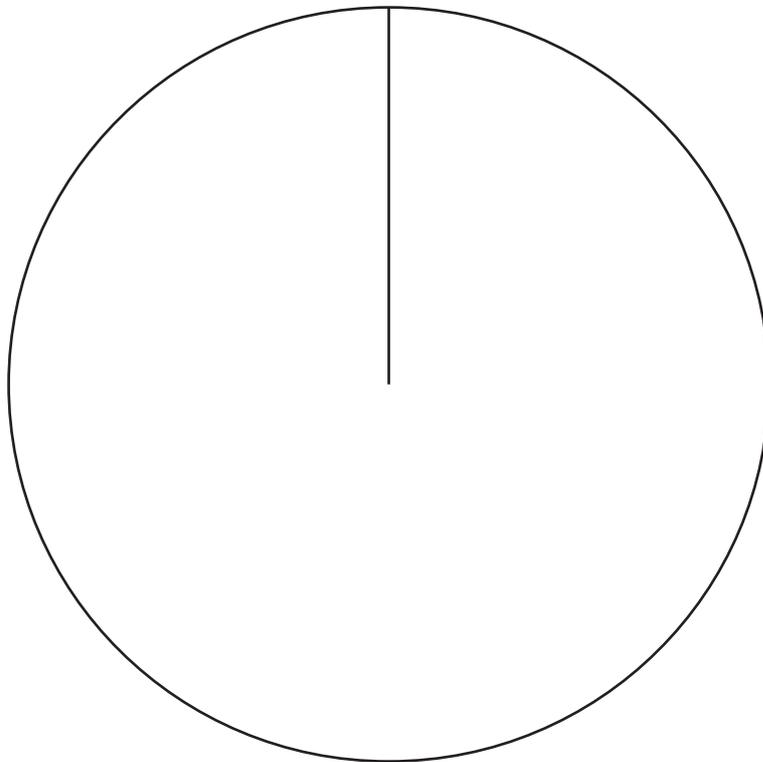
[1]

- (b) Calculate the sector angle for students who travel by bus.

Answer(b)

[1]

- (c) Complete the pie chart and label the sectors.



[2]

$$16 \quad \mathbf{p} = \begin{pmatrix} 0 \\ 9 \end{pmatrix} \quad \mathbf{q} = \begin{pmatrix} 3 \\ -5 \end{pmatrix} \quad \mathbf{r} = \begin{pmatrix} -4 \\ 3 \end{pmatrix}$$

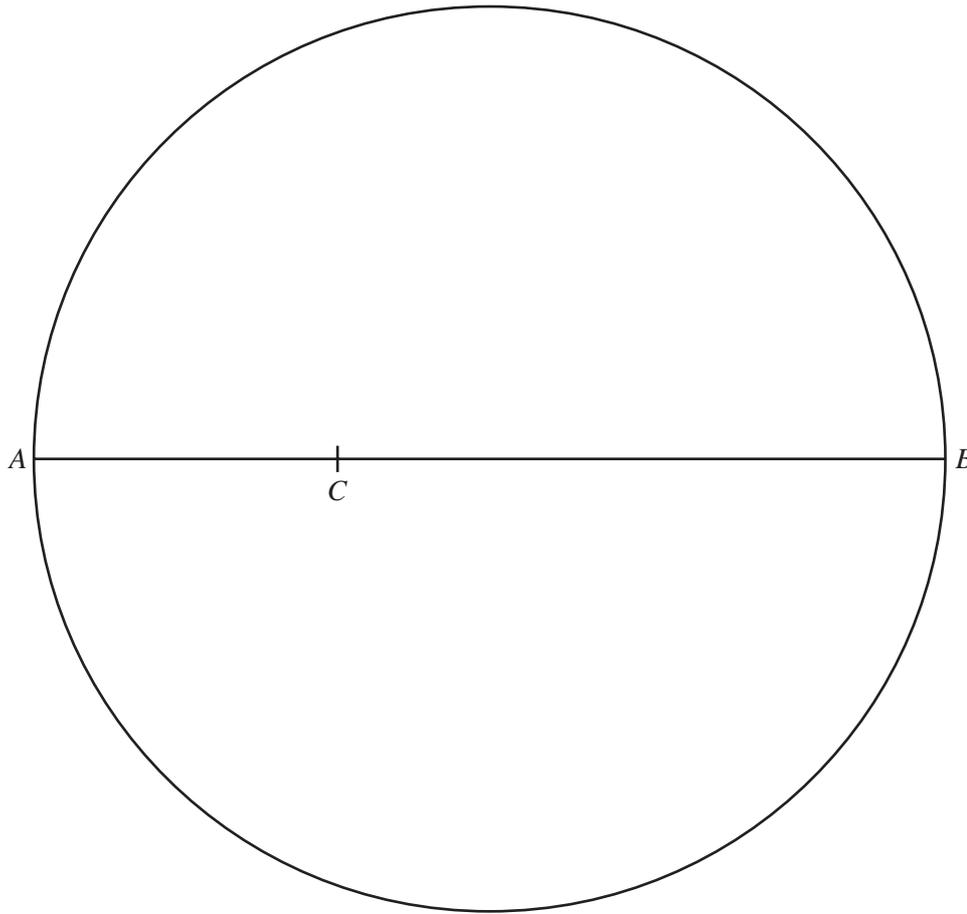
Calculate

(a) $7\mathbf{p}$,

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

(b) $\mathbf{q} - \mathbf{r}$.

Answer(b) $\begin{pmatrix} \\ \end{pmatrix}$ [2]



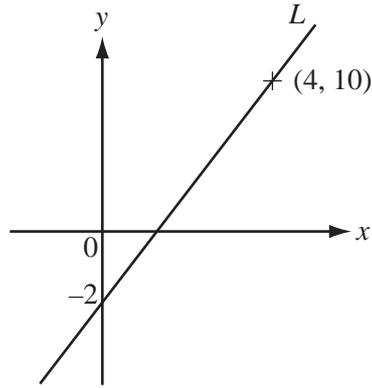
AB is the diameter of a circle.
 C is a point on AB such that $AC = 4$ cm.

(a) Using a straight edge and compasses only, construct

- (i) the locus of points which are equidistant from A and from B , [2]
 (ii) the locus of points which are 4 cm from C . [1]

(b) Shade the region in the diagram which is

- and**
- nearer to B than to A
 - less than 4 cm from C . [1]



NOT TO
SCALE

Line L passes through the point $(4, 10)$.

- (a) Find the gradient of line L .

Answer(a) [2]

- (b) Write down the equation of line L , in the form $y = mx + c$.

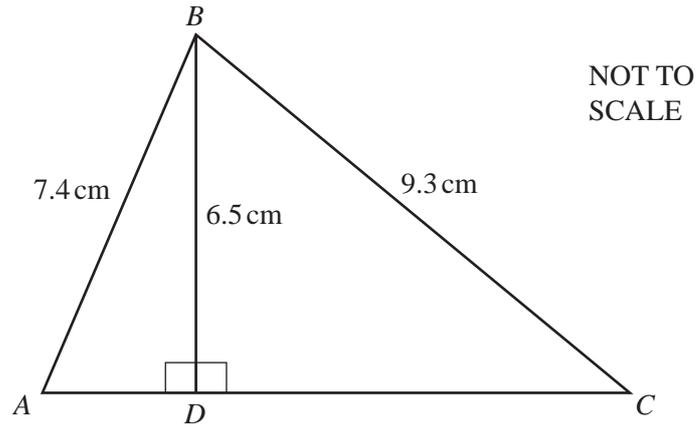
Answer(b) $y =$ [1]

- (c) Line P passes through the point $(0, 0)$.
Line P is parallel to line L .

Write down the equation of line P .

Answer(c) $y =$ [1]

19



(a) Calculate AD .

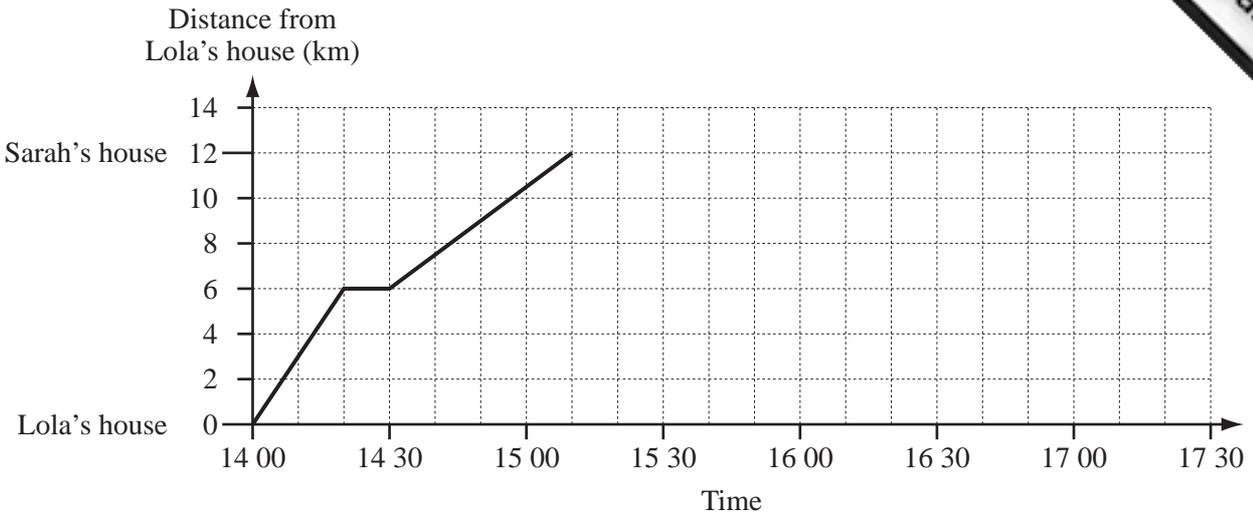
Answer(a) $AD = \dots\dots\dots$ cm [3]

(b) Use trigonometry to calculate angle BCD .

Answer(b) Angle $BCD = \dots\dots\dots$ [2]

Question 20 is printed on the next page.

20



The travel graph shows Lola's journey from her house to Sarah's house.

(a) Lola stopped at a shop on the way to Sarah's house.

For how many minutes did she stop?

Answer(a) min [1]

(b) Write down the time she arrived at Sarah's house.

Answer(b) [1]

(c) Calculate Lola's average speed from leaving the **shop** to arriving at Sarah's house.
Give your answer in kilometres per hour.

Answer(c) km/h [2]

(d) Lola stayed at Sarah's house for 1 hour 20 minutes.
She then cycled home without stopping.
Her journey took 50 minutes.

Complete the travel graph. [2]