1   Write down the number that is 23 less than -1.6 .

.... [1]

2   Write as a fraction in its simplest form.

(a) 72%

.... [1]
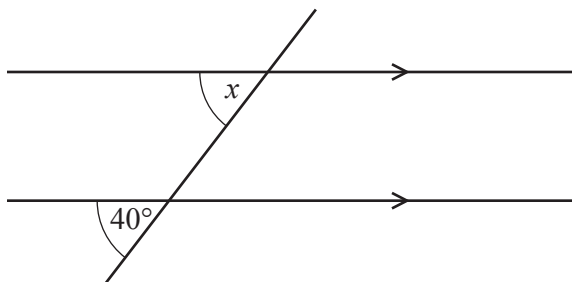
(b) 0.004

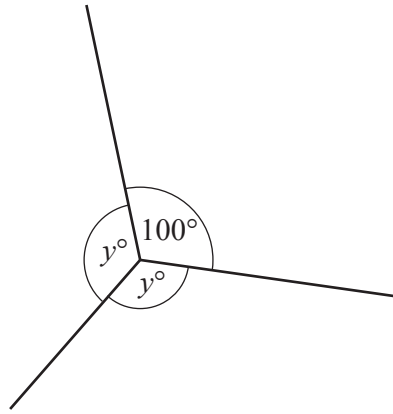.. [1]

3

NOT TO
SCALE

The diagram shows a pair of parallel lines and a straight line.

Complete the statement with the correct geometrical reason.

$x = 40°$ because the angles are .... [1]

4

NOT TO SCALE

Find the value of y.

$y =$ .... [2]

5 Jo invests $600 for 7 years at a rate of 1.5% per year simple interest.

Calculate the total interest earned during the 7 years.

$ .... [2]

6 Maria buys n pencils that cost p cents each.
She pays with a $\$y$ note.

Find, in terms of n, p and y, the amount of change Maria receives.
Give your answer in cents.

.... cents [2]

7   12   18   29   49   91   125

From the list of numbers, write down

(a) a cube number,

.... [1]

(b) a prime number.

.... [1]

8   Alex changes 190 euros (€) into pounds (£) when £1 = €1.1723 .

Calculate the amount Alex receives.
Give your answer correct to 2 decimal places.

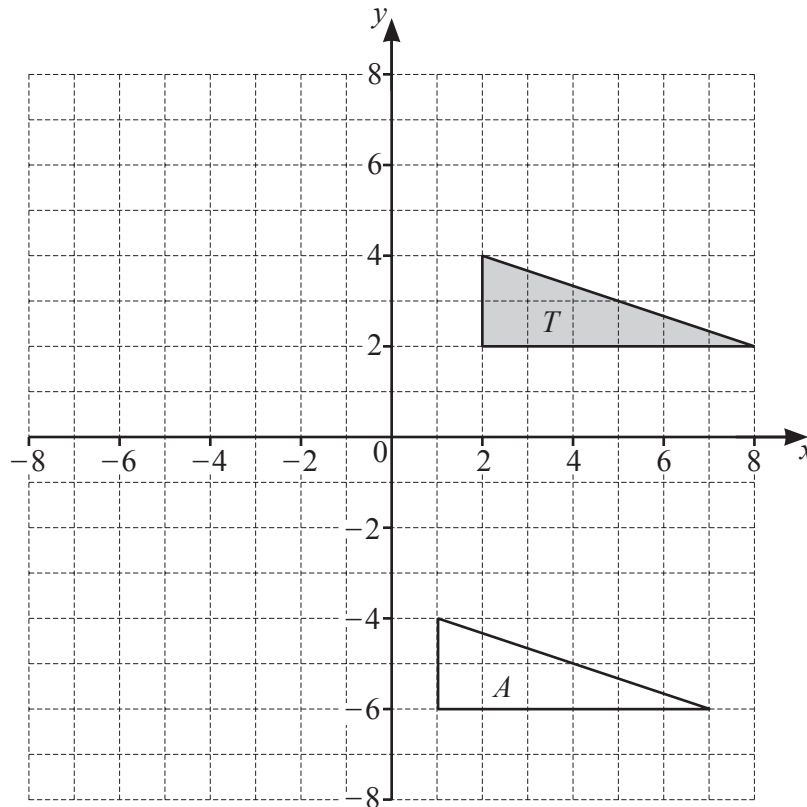£ .... [2]

9   **Without using a calculator**, work out $1\frac{2}{3} \div 7\frac{1}{2}$.

You must show all your working and give your answer as a fraction in its simplest form.

.... [3]

10

(a) Describe fully the **single** transformation that maps triangle *T* onto triangle *A*.

....

.... [2]

(b) Draw the image of triangle *T* after an enlargement, scale factor $-\frac{1}{2}$, centre (0, 0). [2]

11 Simplify $3x^3 \times 4x^4$.

.... [2]

12 x is an integer and $-3 \leqslant 2x - 1 < 3$.

Find the values of x.

.... [2]

13 Expand and simplify.
$$6(t - q) - 2(t - 3q)$$

.... [2]

14 The magnitude of the vector $\begin{pmatrix} 20 \\ k \end{pmatrix}$ is 29.

Find the value of k.

$k =$ .... [3]

15
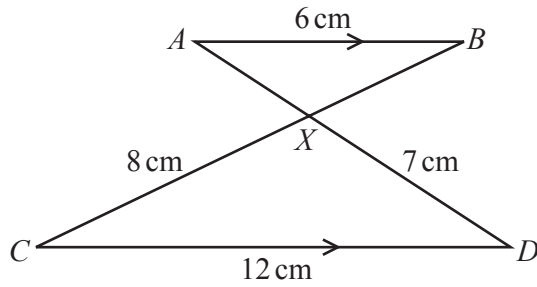
NOT TO
SCALE

In the diagram, *AB* is parallel to *CD*.
AD and *BC* intersect at *X*.
AB = 6 cm, *CD* = 12 cm, *CX* = 8 cm and *DX* = 7 cm.

(a) Complete the statement.

Triangle *ABX* is .... to triangle *DCX*.   [1]

(b) Work out the length of *BX*.

BX = ... cm [2]

(c) The area of triangle *DCX* is 26.906 cm^2.

Use this value to find the area of

(i) triangle *ABX*,

.... cm^2 [2]

(ii) triangle *ACX*.

.... cm^2 [1]

16 The sides of a regular hexagon are 80 mm, correct to the nearest millimetre.
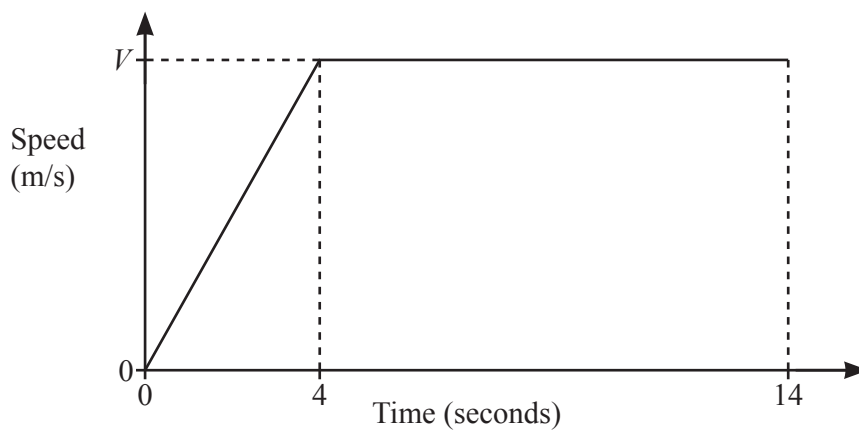
Calculate the lower bound of the perimeter of the hexagon.

.... mm [2]

17 The interior angle of a regular polygon is 175°.

Calculate the number of sides.

.... [2]

18 A car starts from rest and accelerates at a rate of 3 m/s^2 for 4 seconds.
The car then travels at a constant speed for 10 seconds.

The diagram shows the speed–time graph for this journey.
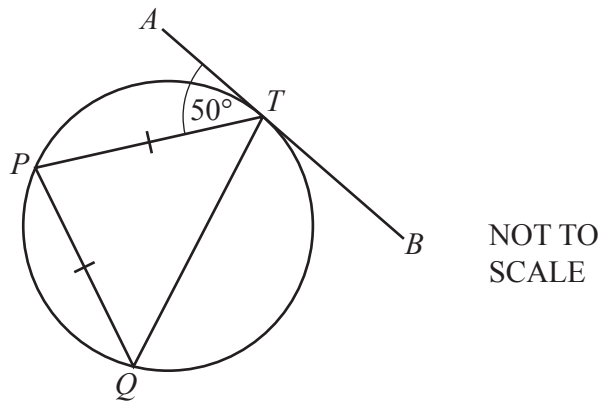
(a) Find the value of V.

V = ... [1]

(b) Calculate the total distance travelled by the car during the 14 seconds.

.... m [2]

19 (a)

NOT TO SCALE

P, *Q* and *T* are points on a circle.
ATB is a tangent to the circle at *T* and *PT* = *PQ*.

Find angle *TPQ*.

Angle *TPQ* = ... [2]

(b)
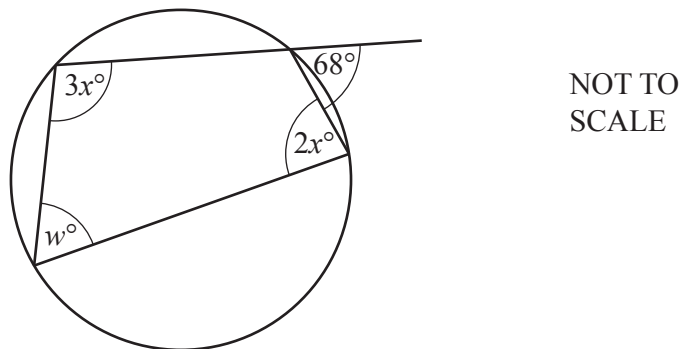
NOT TO SCALE

The diagram shows a cyclic quadrilateral with an exterior angle of 68°.

Find the value of *w* and the value of *x*.

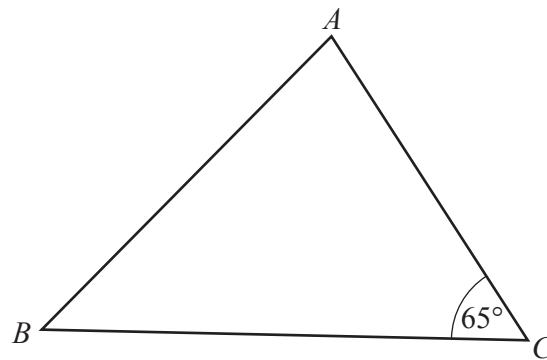*w* = ...

x = ... [3]

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20 Simplify $2.1 \times 10^{p} + 2.1 \times 10^{p-1}$.
Give your answer in standard form.

.... [2]

21

NOT TO
SCALE

The shortest distance from B to AC is 12.8 cm.

Calculate BC.

$BC = $ .... cm [3]

22 z is inversely proportional to the square of $(y-2)$.
When $y = 5$, $z = 9$.

Find z in terms of y.

$z = $ .... [2]

23 A triangle has sides of length 11 cm, 10 cm and 9 cm.

Calculate the largest angle in the triangle.

.... [4]
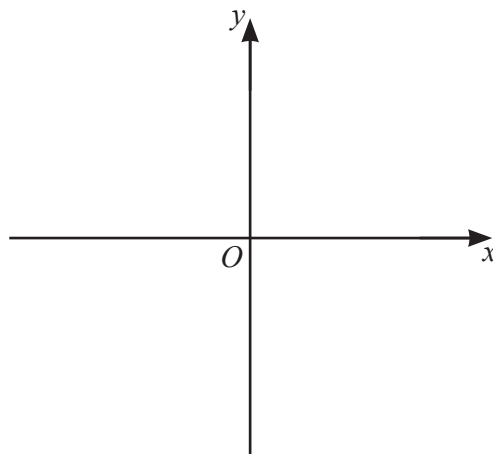
24 On the axes, sketch the graph of each of these functions.

(a) $y = \dfrac{2}{x}$
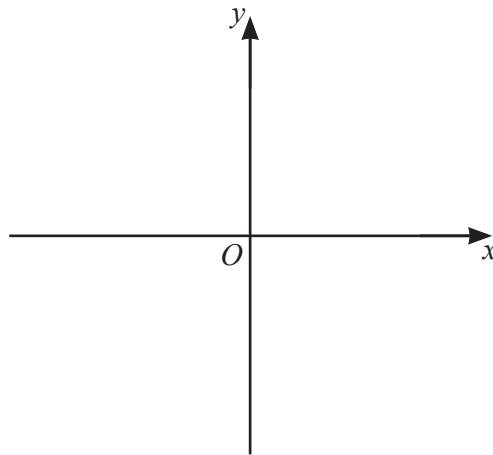
[2]

(b) $y = 2^{-x}$

[2]

Questions 25 and 26 are printed on the next page.

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25 Find the *x*-coordinates of the points on the graph of $y = x^5 - 5x^4$ where the gradient is 0.

.... [4]

26 Malik goes to a shop every day to buy bread.

On any day, the probability that Malik goes to the shop in the morning is 0.7 .

If he goes in the morning, the probability that there is bread for Malik to buy is 0.95 .
If he goes later, the probability that there is bread for Malik to buy is 0.6 .

Calculate the probability that, on any day, there is bread for Malik to buy.

.... [3]

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