



2

1 Work out 8% of 140.

..... [1]

2 The exchange rate between dollars and euros (€) is \$1 = €0.88 .

Change \$350 into euros.

€..... [1]

3 Simplify  $\frac{a^5}{a^2}$ .

..... [1]

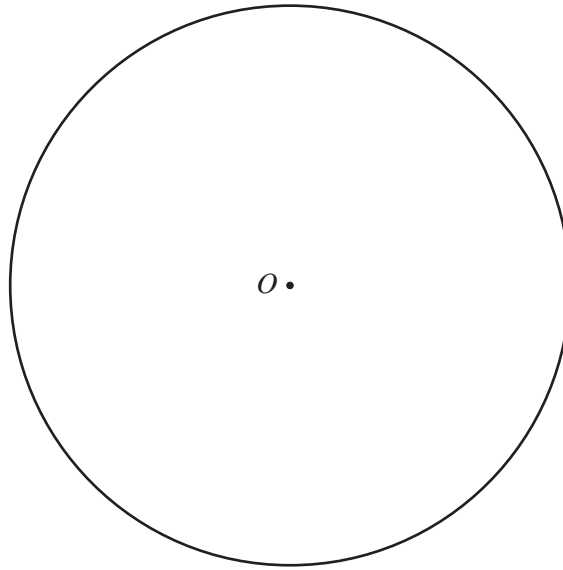
4 Write these in order of size, starting with the smallest.

0.38       $\frac{3}{8}$       30%       $\frac{7}{20}$

..... < ..... < ..... < ..... [2]  
*smallest*

3

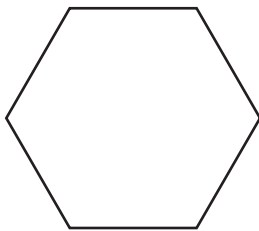
5 (a)



Measure the radius of the circle, centre *O*.  
Give your answer in centimetres.

..... cm [1]

(b)



Write down the mathematical name of this polygon.

..... [1]

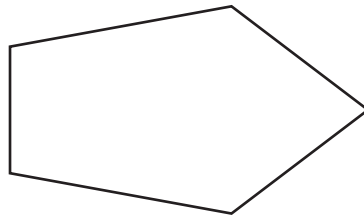
6 (a) Write 257 964 correct to the nearest thousand.

..... [1]

(b) Write 0.06031 correct to 2 significant figures.

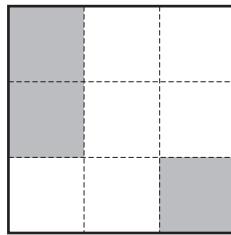
..... [1]

7 (a) Draw the line of symmetry on the shape below.



[1]

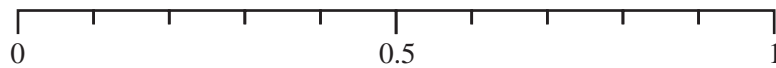
(b) Shade **one** more square so that this pattern has rotational symmetry of order 2.



[1]

8 A bag contains 50 counters.  
10 of the counters are red.  
One of the counters is taken from the bag at random.

(a) Draw an arrow ( $\downarrow$ ) on the scale to show the probability that this counter is red.



[1]

(b) Find the probability that the counter is **not** red.

..... [1]

- 9 (a) On Monday, the lowest temperature was  $-12^{\circ}\text{C}$ .  
The highest temperature was  $4^{\circ}\text{C}$ .

Work out the difference between these temperatures.

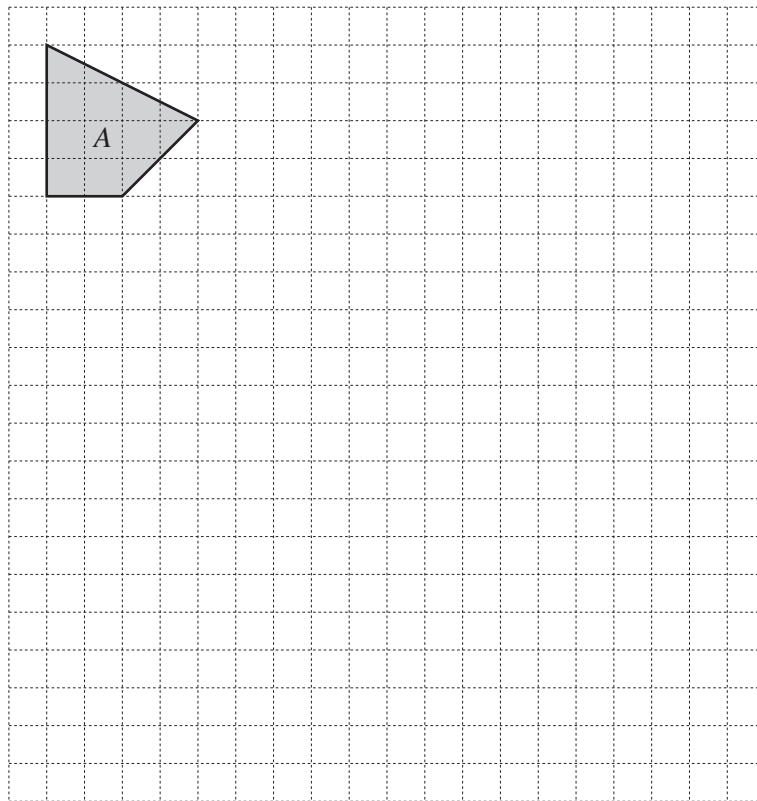
.....  $^{\circ}\text{C}$  [1]

- (b) On Tuesday, the highest temperature was  $-3^{\circ}\text{C}$ .  
The lowest temperature was  $8^{\circ}\text{C}$  lower than this.

Work out the lowest temperature on Tuesday.

.....  $^{\circ}\text{C}$  [1]

- 10 Shape A is shown on the grid.



On the grid, enlarge shape A by scale factor 3.

[2]

11 Work out.

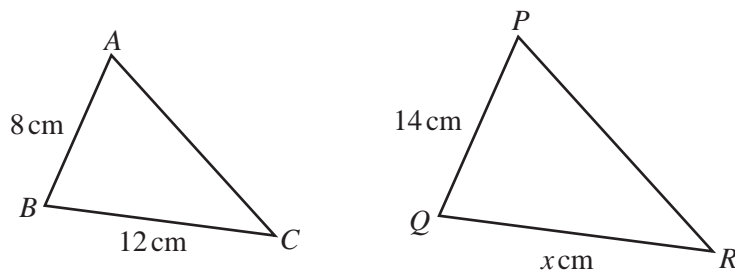
(a)  $6\begin{pmatrix} 2 \\ -1 \end{pmatrix}$

$$\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix} \quad [1]$$

(b)  $\begin{pmatrix} 5 \\ -3 \end{pmatrix} - \begin{pmatrix} 2 \\ 4 \end{pmatrix}$

$$\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix} \quad [1]$$

12



NOT TO  
SCALE

Triangle  $ABC$  is similar to triangle  $PQR$ .

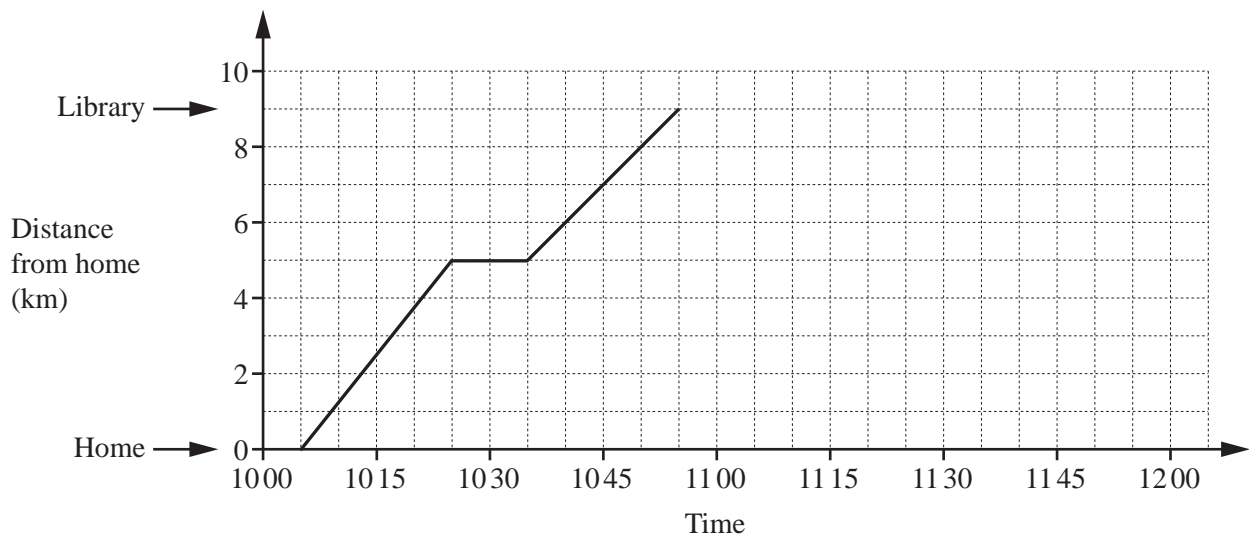
Find the value of  $x$ .

$$x = \dots\dots\dots [2]$$

13 Calculate the size of one exterior angle of a regular 15-sided polygon.

..... [2]

14 Shohan cycles from home to the library.  
He stops at the post office on the way.  
The travel graph shows his journey.



(a) Write down the time Shohan arrives at the post office.

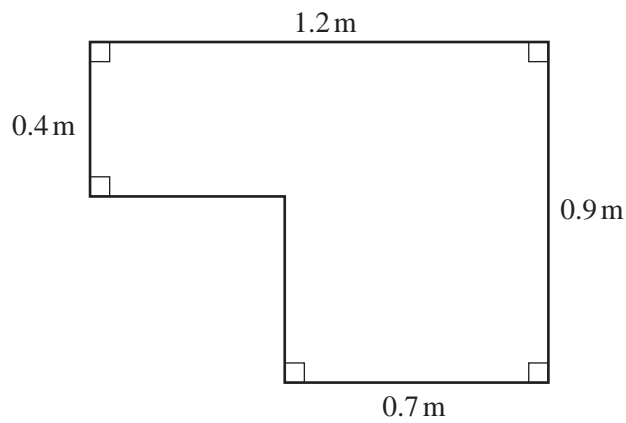
..... [1]

(b) Shohan stays at the library for 25 minutes.  
He then cycles home at a constant speed of 18 km/h.

Complete the travel graph.

[2]

15 The diagram shows the top of a table.



NOT TO SCALE

(a) Calculate the perimeter.

..... m [1]

(b) Calculate the area.

..... m<sup>2</sup> [2]

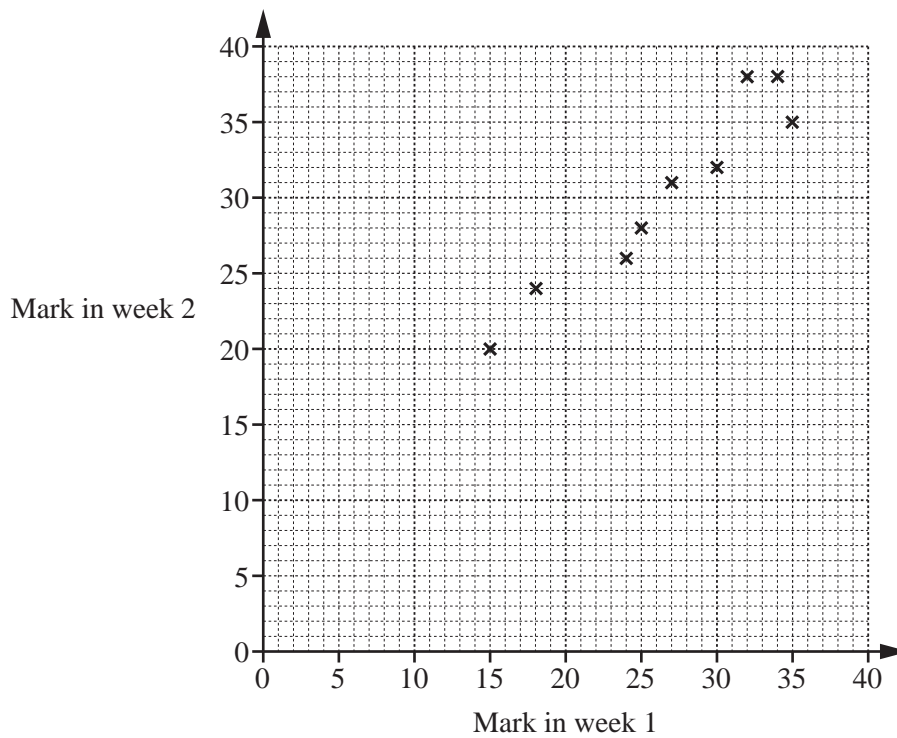
16 Without using your calculator, work out  $\frac{3}{8} \div 2\frac{1}{4}$ .

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

..... [3]



- 17 A teacher gives her Spanish students a test each week.  
Some of the students' marks for two weeks are shown in the scatter diagram.



- (a) Leo scored 28 marks in week 1 and 30 marks in week 2.

On the scatter diagram, plot a point to show Leo's marks. [1]

- (b) On the scatter diagram, draw a line of best fit. [1]

- (c) Sonia scored 20 marks in week 1 but was absent in week 2.

Use your line of best fit to estimate a mark for Sonia in week 2.

..... [1]

- 18 Jan invests \$800 at a rate of 3% per year simple interest.

Calculate the value of her investment at the end of 4 years.

\$ ..... [3]

## 10

19 These are the first five terms in a sequence.

8      11      14      17      20

(a) Find the next term.

..... [1]

(b) Find an expression for the  $n$ th term.

..... [2]

20 A water tank in the shape of a cuboid has length 1.5 metres and width 1 metre.  
The water in the tank is 60 centimetres deep.

Calculate the number of litres of water in the tank.

..... litres [3]

21 (a) In 2016, the population of Nigeria was 187 000 000.

Write 187 000 000 in standard form.

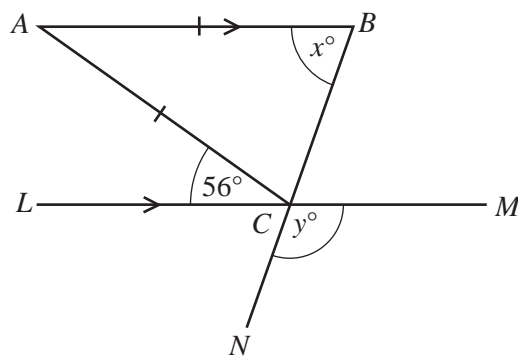
..... [1]

(b) In 2016, the population of South Africa was  $5.50 \times 10^7$ .  
 In 2016, the population of Kenya was  $4.72 \times 10^7$ .

Calculate the difference between the population of South Africa and the population of Kenya.  
 Give your answer in standard form.

..... [2]

22



NOT TO SCALE

The diagram shows an isosceles triangle  $ABC$  with  $AB = AC$ .  
 $LCM$  and  $BCN$  are straight lines and  $LCM$  is parallel to  $AB$ .  
 Angle  $ACL = 56^\circ$ .

Find the value of  $x$  and the value of  $y$ .

$x =$  .....

$y =$  ..... [4]

**Question 23 is printed on the next page.**

- 23 (a) Expand the brackets and simplify fully.

$$5(x - 3) + 2(3x + 1)$$

..... [2]

- (b) Solve the simultaneous equations.  
You must show all your working.

$$4x - y = 14$$

$$3x + 2y = 5$$

$x =$  .....

$y =$  ..... [3]

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