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0580/11

October/November 2018

1 hour

Additional Materials: Electronic calculator Geometrical instruments
 Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

DO **NOT** WRITE IN ANY BARCODES.

For π , use either your calculator value or 3.142.

The total of the marks for this paper is 56.

This document consists of **12** printed pages.

- 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 $\frac{a^5}{a^2}$.

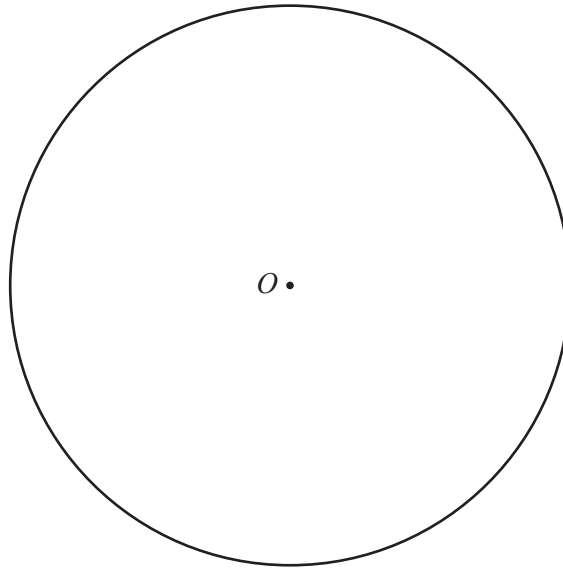
.....[1]

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

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

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

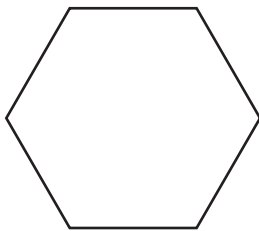
5 (a)



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]

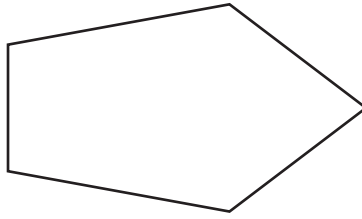
6 (a) Write 257 964 correct to the nearest thousand.

..... [1]

(b) Write 0.060 31 correct to 2 significant figures.

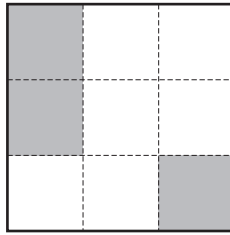
..... [1]

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



[1]

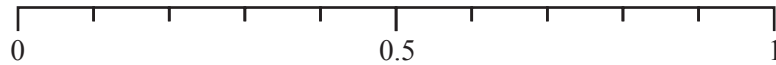
- (b) Shade **one** more square so that this pattern has rotational symmetry of order 2.



[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°C .
The highest temperature was 4°C .

Work out the difference between these temperatures.

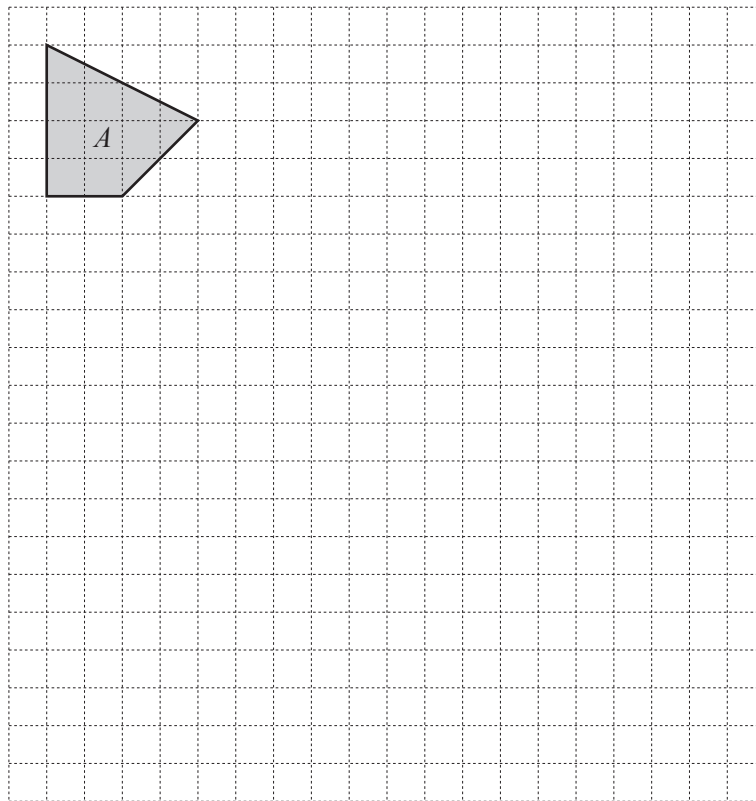
..... $^{\circ}\text{C}$ [1]

- (b) On Tuesday, the highest temperature was -3°C .
The lowest temperature was 8°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.

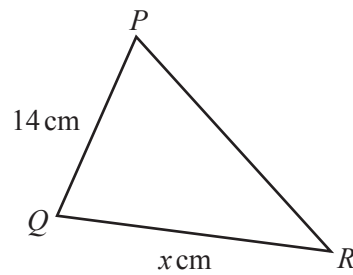
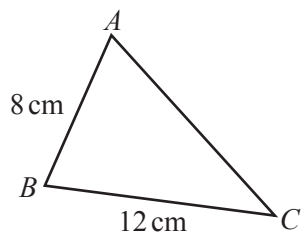
(a) $6\begin{pmatrix} 2 \\ -1 \end{pmatrix}$

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

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

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

12



NOT TO
SCALE

Triangle ABC is similar to triangle PQR .

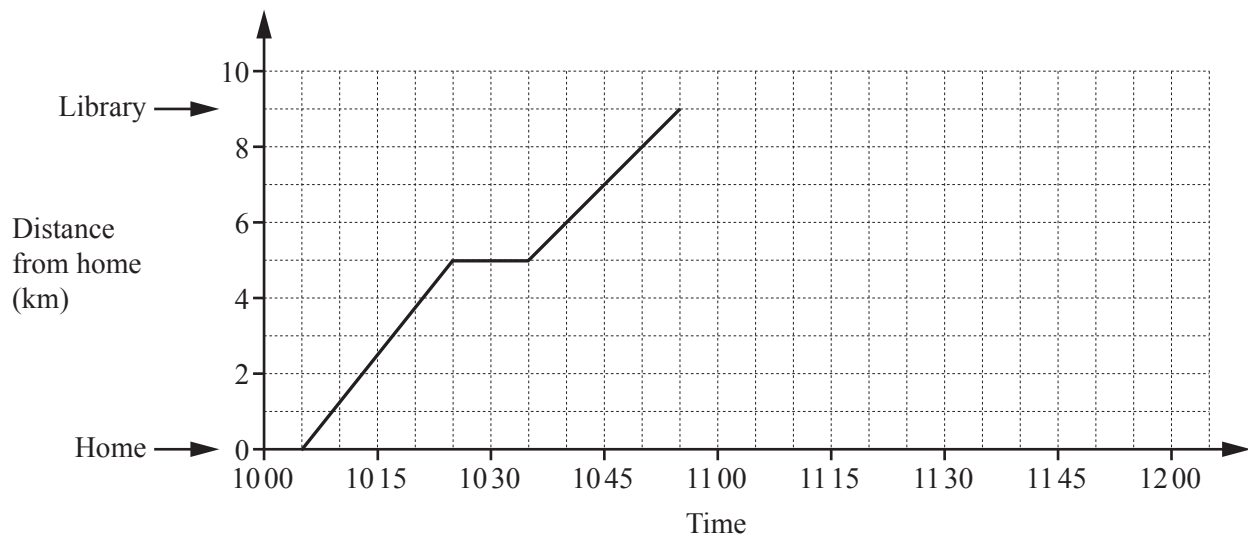
Find the value of x .

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

- 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.

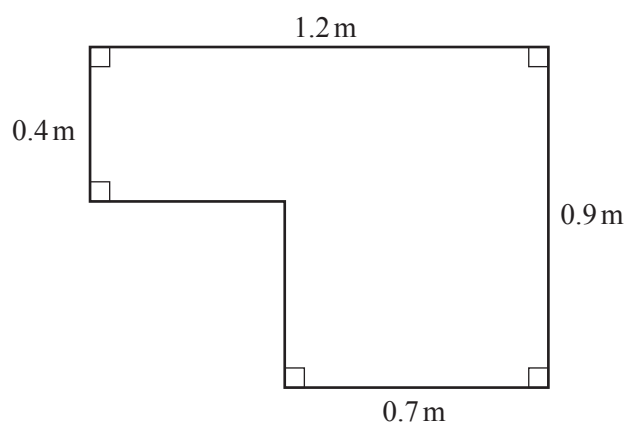
..... [1]

- (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.

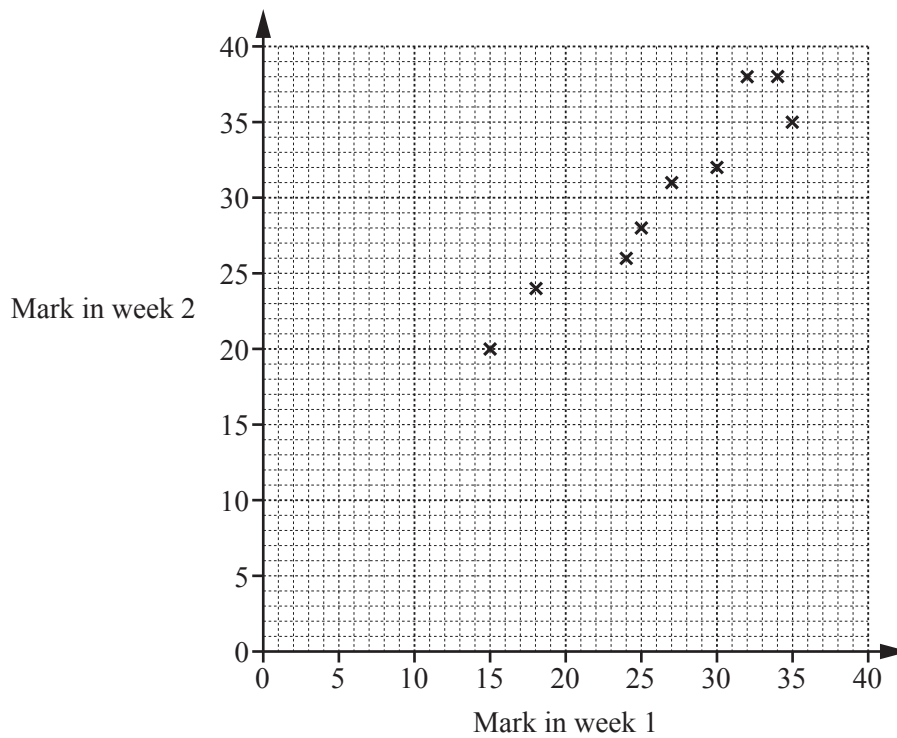
..... m² [2]

- 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]

- 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.

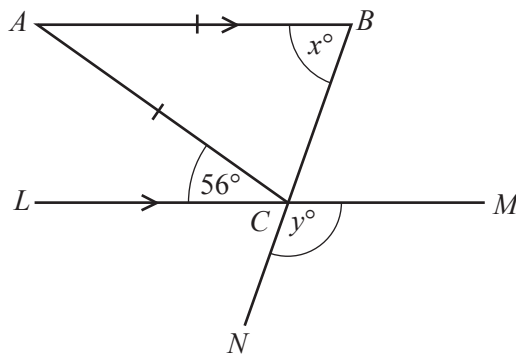
..... [1]

- (b) In 2016, the population of South Africa was 5.50×10^7 .
In 2016, the population of Kenya was 4.72×10^7 .

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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