Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

5847603060

MATHEMATICS **0580/12**

Paper 1 (Core) **May/June 2023**

1 hour

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should use a calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π, use either your calculator value or 3.142.

INFORMATION

- The total mark for this paper is 56.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **12** pages.

1 **(a)** Write down all the factors of 18.

..... [2]

(b) Write down the reciprocal of 8.

..... [1]

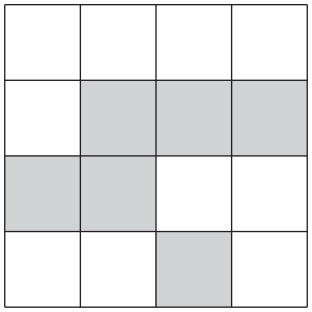
2

(a) Draw a line perpendicular to the line AB. [1]

(b) Measure the line AB in centimetres.

.....cm [1]

3



Shade two squares so that the diagram has rotational symmetry of order 4. [2]

4 Kai and Ava each have a piece of wood 57 cm long.

(a) Kai cuts his piece into 4 equal length parts.

Find the length of one part.

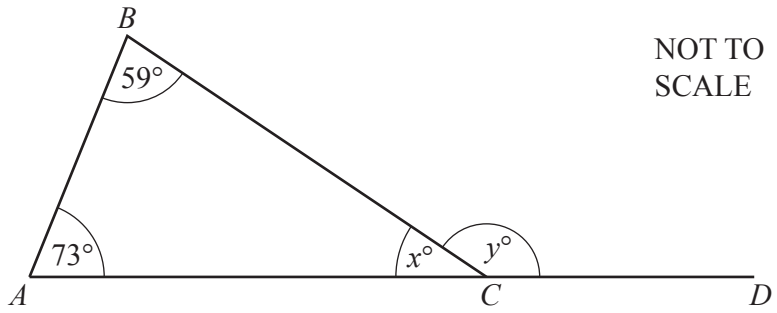
.....cm [1]

(b) Ava cuts her piece into two parts and the lengths are in the ratio 5 : 1.

Find the length of the longer part.

.....cm [2]

5



In the diagram, *ABC* is a triangle and *ACD* is a straight line.

Find the value of x and the value of y.

$x =$ .....

$y =$ ..... [2]

6 Find the temperature that is 8 °C colder than −5 °C.

..... °C [1]

7 There are two prime numbers in this list.

27 47 57 61 75 93

Work out the sum of these two prime numbers.

..... [2]

8 On ten days, Stefan records the number of minutes he has to wait for a train.

1 3 12 5 4 23 5 24 11 8

(a) Complete the stem-and-leaf diagram to show this information.

0	1 3
1	
2	

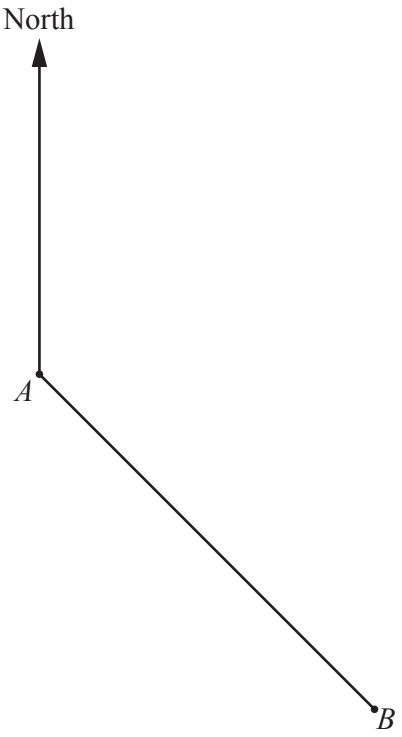
Key: 0 | 1 represents 1 minute

[2]

(b) Find the median.

..... min [1]

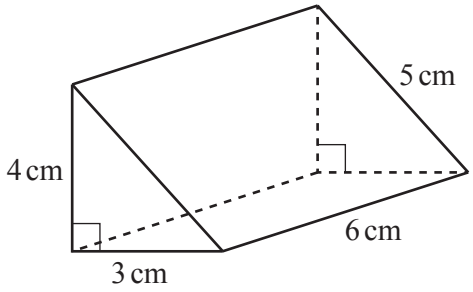
9 The scale drawing shows the positions of town *A* and town *B*.



Measure the bearing of town *B* from town *A*.

..... [1]

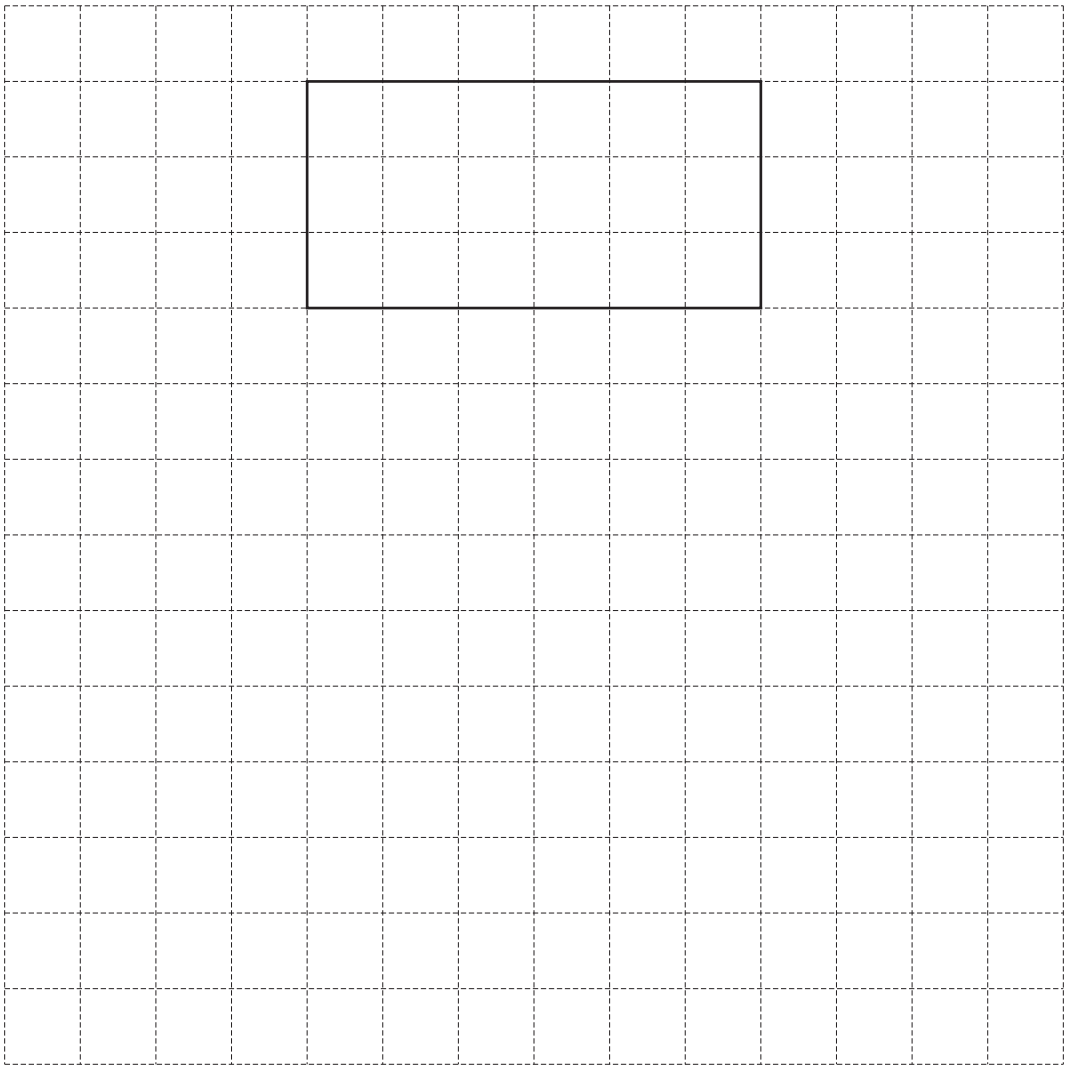
10



NOT TO SCALE

The diagram shows a right-angled triangular prism.

On the 1 cm^2 grid, complete the net of this prism.
One face has been drawn for you.



[3]

11 The distance from town A to town B on a map is 3.5 cm.
The scale on the map is 1 : 250 000.

Find the actual distance, in kilometres, from town A to town B.

..... km [2]

12 A spinner is spun.
The possible outcomes are A, B, C or D.
The probability of spinning A, C or D is shown in the table.

Letter on spinner	A	B	C	D
Probability	0.2		0.05	0.35

Complete the table.

[2]

13 $\mathscr{E} = \{x : 1 \leqslant x \leqslant 20\}$
$E = \{\text{even numbers}\}$
$M = \{\text{multiples of 5}\}$

(a) Find $\text{n}(M)$.

..... [1]

(b) Find the elements in the set $E \cap M$.

..... [1]

[Turn over

14 **Without using a calculator**, work out $\frac{4}{7} \div 1\frac{5}{21}$.
You must show all your working and give your answer as a fraction in its simplest form.

..... [3]

15 F is the point $(1, -4)$, $\overrightarrow{FG} = \begin{pmatrix} 8 \\ -3 \end{pmatrix}$ and $\overrightarrow{GH} = \begin{pmatrix} -12 \\ 35 \end{pmatrix}$.

Find

(a) $3\overrightarrow{FG}$

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

(b) $\overrightarrow{FG} + \overrightarrow{GH}$

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

(c) the coordinates of the point G.

(..... , ...) [1]

16 x is an integer where $x \geqslant -3$ and $x < 3$.

Write down all the possible values of x.

..... [2]

17 Find the size of an interior angle of a regular 15-sided polygon.

..... [2]

18 **(a)** Write 45 000 in standard form.

..... [1]

(b) Calculate $6.75 \times 10^{-3} \times 4.2 \times 10^{5}$.
Give your answer in standard form.

..... [1]

19 Simplify.

$$18x^{12} \div 3x^{3}$$

..... [2]

[Turn over

20 Buses at a station go to the port or to the town.

Buses leave every 28 minutes for the port.
Buses leave every 48 minutes for the town.

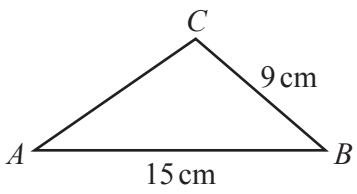
At 10 18 a bus for the port and a bus for the town leave the station together.

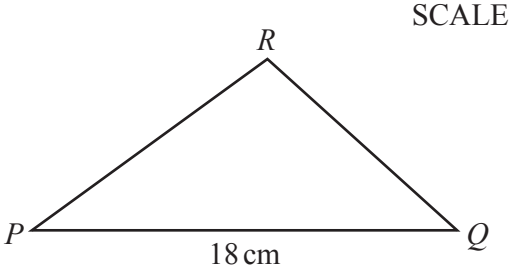
Find the next time when a bus for the port and a bus for the town leave the station together.

..... [3]

21

NOT TO SCALE



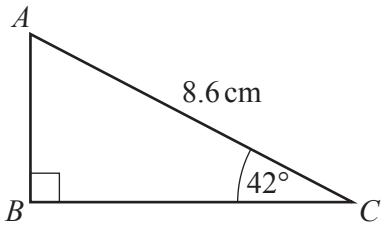


Triangle ABC is similar to triangle PQR.

Calculate QR.

$QR =$ ..... cm [2]

22 (a)



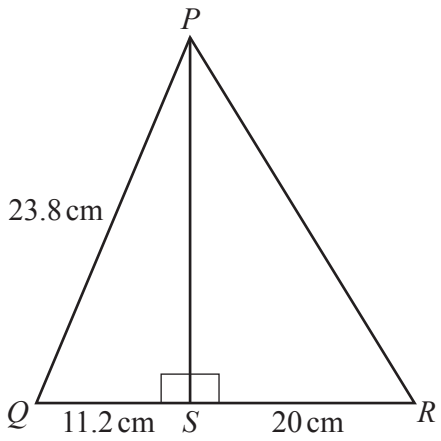
NOT TO SCALE

The diagram shows a right-angled triangle ABC.

Calculate AB.

$AB =$ ..... cm [2]

(b)



NOT TO SCALE

The diagram shows right-angled triangles PQS and PRS.
$PQ = 23.8$ cm, $QS = 11.2$ cm and $SR = 20$ cm.

Calculate PR.

$PR =$ ..... cm [4]

Question 23 is printed on the next page.

23 **(a)** The mass, m kilograms, of object A is 350 kg, correct to the nearest 10 kg.

Complete this statement about the value of m.

..... $\leqslant m <$ ..... [2]

(b) The mass of object B is 348 kg, correct to the nearest kilogram.

Show that the mass of object B may be more than the mass of object A.

..... [1]