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CANDIDATE NAME

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8707093244

MATHEMATICS **0580/13**

Paper 1 (Core) **May/June 2024**

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. Any blank pages are indicated.

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[Turn over

1 Write the number two million two thousand and two in figures.

..... [1]

2 Put one pair of brackets into this calculation to make it correct.

$$5 + 4 \times 3 + 9 = 53$$

[1]

3 Simplify.

$7x - 8y - x - y$

..... [2]

4 **(a)** Write 164 703 correct to the nearest thousand.

..... [1]

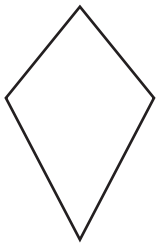
(b) Write 16.983 correct to 1 decimal place.

..... [1]

(c) Write 0.037 665 correct to 2 significant figures.

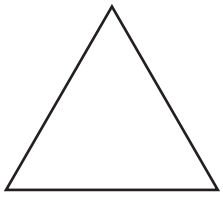
..... [1]

5 **(a)**



On the diagram, draw any lines of symmetry. [1]

(b)



Write down the order of rotational symmetry of this shape.

..... [1]

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6 Write these numbers in order, starting with the smallest.

$0.45 \qquad 42\% \qquad \frac{4}{11} \qquad \frac{2}{5}$

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

smallest

7 The base of a cuboid measures 10 cm by 7 cm.
The volume of the cuboid is 280 cm^3.

Calculate the height of the cuboid.

..... cm [2]

8 In a city, the probability that it will rain today is 0.15 .

Find the probability that it will not rain today in this city.

..... [1]

9 One day the temperature in Tokyo is −5 °C and the temperature in Manila is 18 °C.

(a) Work out the difference between these two temperatures.

..... °C [1]

(b) The temperature in Tokyo rises by 4 °C.

Find the new temperature in Tokyo.

..... °C [1]

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10 **(a)** These are the first four terms of a sequence.

3 10 17 24

(i) Write down the next term.

..... [1]

(ii) Write down the term to term rule for continuing the sequence.

..... [1]

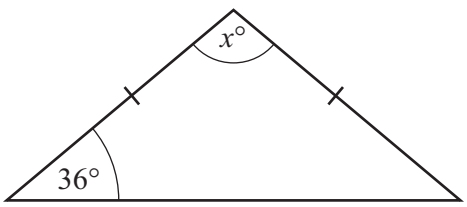
(b) These are the first four terms of another sequence.

16 14 11 7

Write down the next two terms of this sequence.

..... , ... [2]

11



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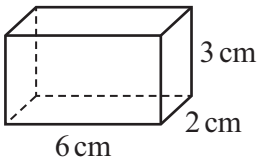
The diagram shows an isosceles triangle.

Find the value of x.

$x =$ ..... [2]

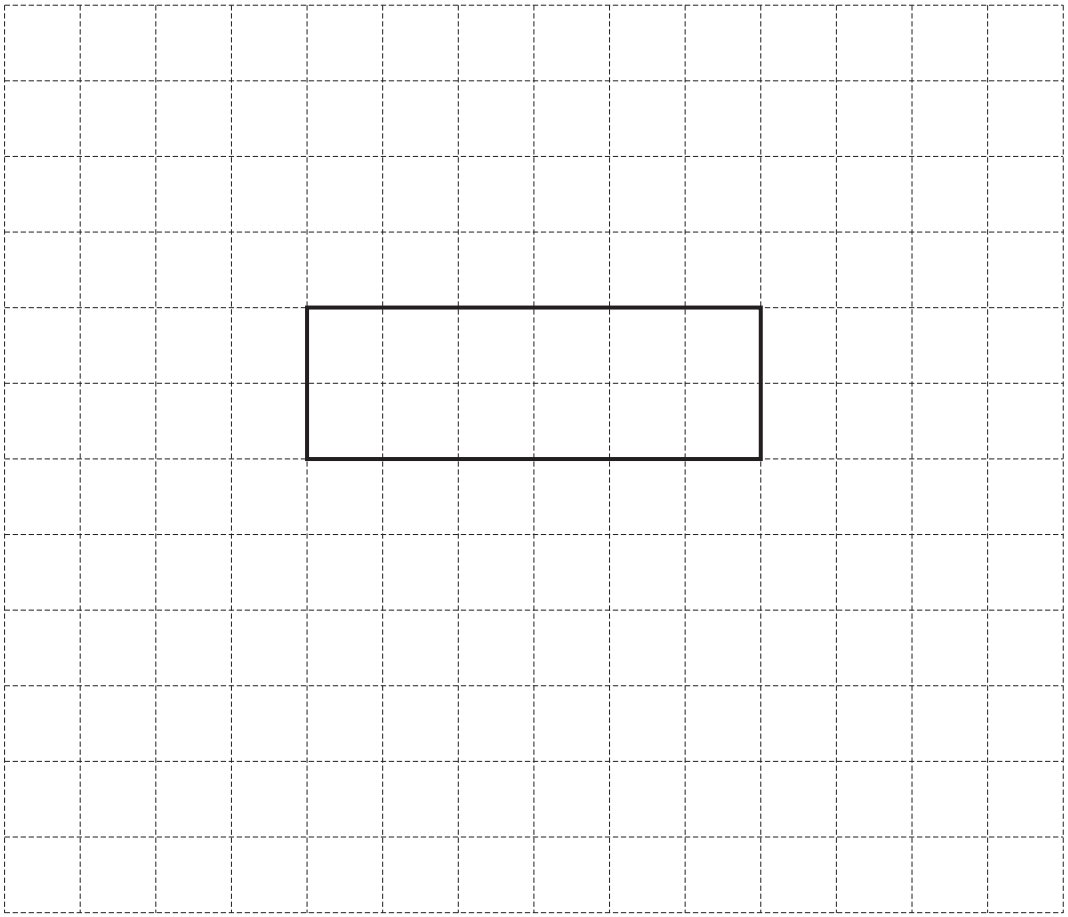
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12 The diagram shows a cuboid.



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



[3]

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13 Factorise completely.

$$4x^2y - 5xy^2$$

..... [2]

14 The scale of a map is 1 : 40 000.
On the map the distance between two villages is 37 cm.

Calculate the actual distance between the two villages.
Give your answer in kilometres.

..... km [2]

15 **Without using a calculator**, work out $\frac{3}{7} - \frac{1}{14}$.

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

..... [2]

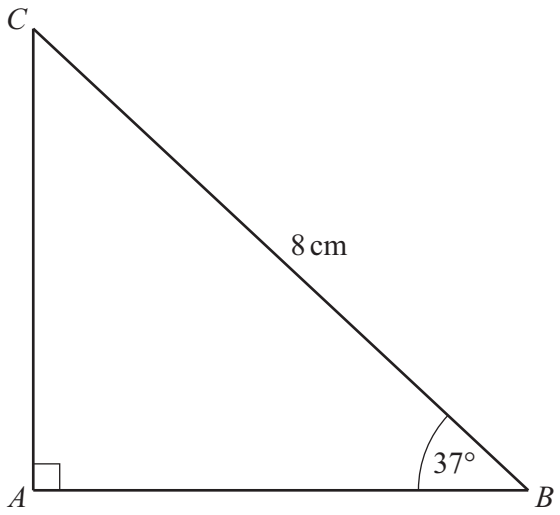
16 The price of a game increases from \$48 to \$56.40 .

Calculate the percentage increase in the price.

..... % [2]

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NOT TO SCALE

The diagram shows a right-angled triangle.

Calculate AB.

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

18 The length, s metres, of a ship is 83 m, correct to the nearest metre.

Complete this statement about the value of s.

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

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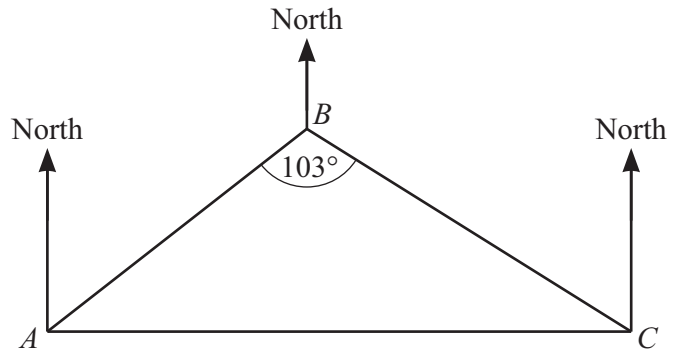
19 Solve the simultaneous equations.

$$5t - 2w = 19$$
$$3t + 2w = 5$$

$t =$ .....

$w =$ ..... [2]

20 The diagram shows the positions of three towns A, B and C.



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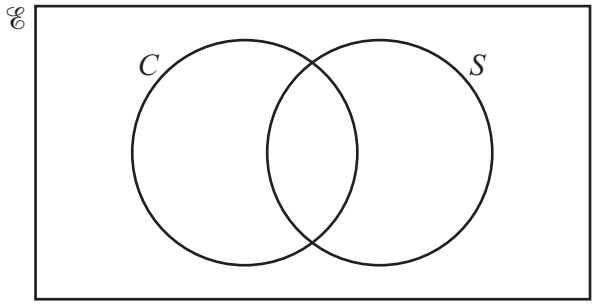
Angle $ABC = 103°$.
The bearing of town B from town A is 048°.
Town C is due east of town A.

Find the bearing of town C from town B.

..... [4]

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21 **(a)** $\mathscr{E} = \{1, 4, 5, 8, 9, 12, 16, 64\}$
$C = \{\text{cube numbers}\}$
$S = \{\text{square numbers}\}$

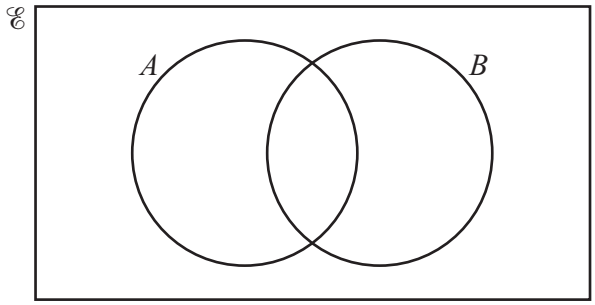


(i) Complete the Venn diagram. [2]

(ii) Find $\text{n}(C \cup S)$.

..... [1]

(b)



On this Venn diagram, shade the region $A \cap B$. [1]

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22 **(a)** Write these numbers in standard form.

(i) 0.007

..... [1]

(ii) 700 000 000

..... [1]

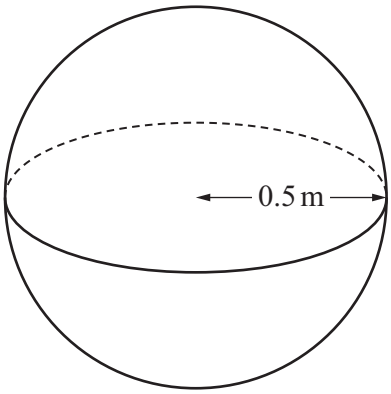
(b) Calculate $\dfrac{3200 \times 5.4 \times 10^{-3}}{4.8 \times 10^{-4}}$.

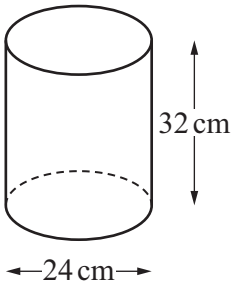
Give your answer in standard form.

..... [2]

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23





NOT TO SCALE

The diagram shows a spherical tank with radius 0.5 m and a cylindrical jug with diameter 24 cm and height 32 cm.
The tank is full of water.

Calculate how many times the jug can be completely filled with water from the tank.
[The volume, V, of a sphere with radius r is $\frac{4}{3}\pi r^3$.]

..... [5]

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