



# **Cambridge IGCSE™**

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## **MATHEMATICS**

**0580/12**

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  $\pi$ , use either your calculator value or 3.142.

## **INFORMATION**

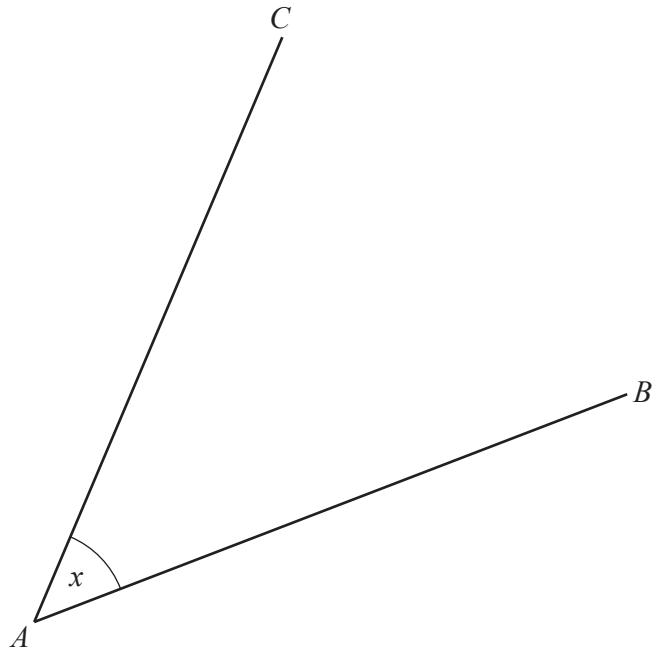
- The total mark for this paper is 56.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages.

1 Write the number 31 072 000 in words.

..... [1]

2



(a) Measure the size of angle  $x$ .

..... [1]

(b) Measure the length of line  $AB$  in millimetres.

..... mm [1]

(c) Mark the midpoint,  $M$ , of line  $AB$ .

[1]

(d) Draw a line through the point  $M$  that is perpendicular to line  $AB$ .

[1]

3 Find the value of the reciprocal of 0.4 .

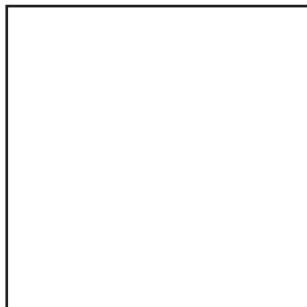
..... [1]

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

$$\frac{6}{7} \quad 8.6 \times 10^{-1} \quad \frac{11}{13} \quad 86.5\%$$

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

5 (a)



Draw all the lines of symmetry on this quadrilateral.

[2]

(b) Write down the mathematical name of a quadrilateral that has rotational symmetry of order 2.

..... [1]

6 The temperature at midnight is  $-4^{\circ}\text{C}$ .  
The temperature at noon is  $25^{\circ}\text{C}$ .

Work out the difference between these two temperatures.

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

7 A gardener charges \$6.55 for each hour he works plus a fixed charge of \$15.50 .

Calculate the total amount he charges when he works for 4 hours.

\$ ..... [2]

8 Jonah has \$750.

He spends  $\frac{1}{4}$  of this money on travel, and some of this money on food.  
He now has \$437.50 .

Work out the fraction of the \$750 he spends on food.

..... [3]

[Turn over

9 A delivery driver records the number of pizzas she delivers each month for one year.

48	44	39	28	57	22
36	41	54	57	49	52

(a) Complete the stem-and-leaf diagram.

2	
3	
4	
5	

Key: 4|8 represents 48 pizzas

[2]

(b) Find the median.

..... [1]

10  $\mathbf{a} = \begin{pmatrix} 5 \\ -7 \end{pmatrix}$      $\mathbf{b} = \begin{pmatrix} 6 \\ -7 \end{pmatrix}$

Work out  $\mathbf{a} - \mathbf{b}$ .

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

11 These are the first four terms of a sequence.

23    17    11    5

(a) Write down the next two terms.

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

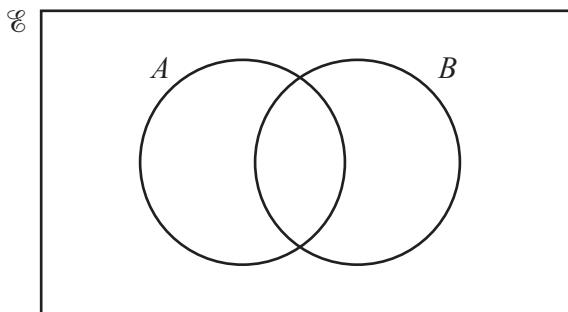
(b) Find the  $n$ th term.

..... [2]

12 Write 0.04628 correct to 2 significant figures.

..... [1]

13



On the Venn diagram, shade the region  $A \cup B$ .

[1]

14 Factorise completely.

$$20x - 90x^2$$

..... [2]

15 Describe the type of correlation between the speed of runners and the time taken to complete a race.

..... [1]

16 A circle has an area of  $36\pi \text{ cm}^2$ .

(a) Find the circumference of the circle.  
Give your answer in terms of  $\pi$ .

..... cm [3]

(b) The circle forms the base of a cylinder with height  $h$  cm.  
The volume of the cylinder is  $540\pi \text{ cm}^3$ .

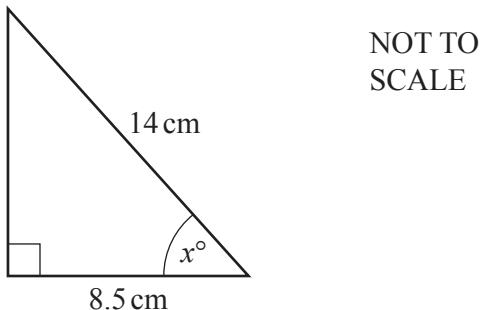
Work out the value of  $h$ .

$h =$  ..... [2]

17 Write 174 000 in standard form.

..... [1]

18



The diagram shows a right-angled triangle.

Calculate the value of  $x$ .

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

19 **Without using a calculator**, work out  $2\frac{1}{4} \div 1\frac{7}{8}$ .

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

..... [3]

20 Expand and simplify.

$$(x-4)(x-7)$$

..... [2]

21  $5^7 \div 5^x = 5^3$

Find the value of  $x$ .

$x = \dots$  [1]

22 The length,  $l$  metres, of a piece of material is 4.5 m, correct to the nearest 10 cm.

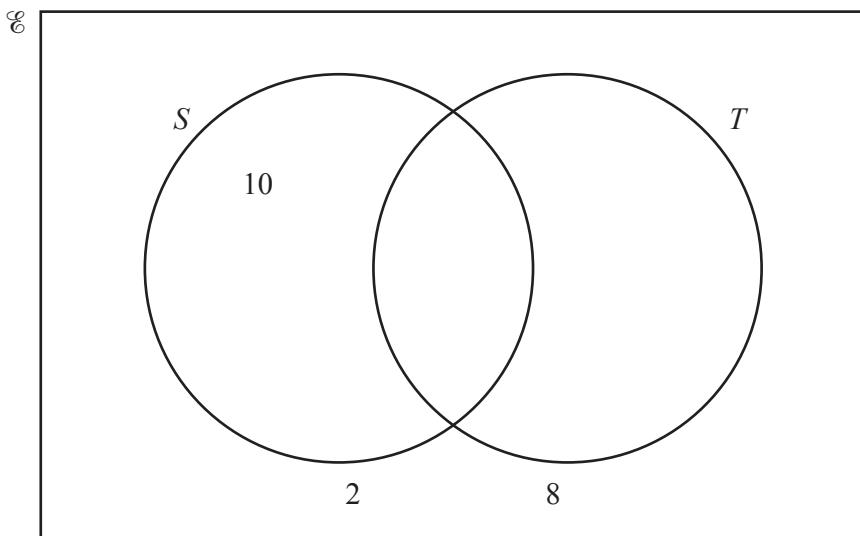
Complete this statement about the value of  $l$ .

$\dots \leq l < \dots$  [2]

23  $\mathcal{E} = \{x: x \text{ is a natural number less than } 12\}$

$S = \{1, 4, 7, 10\}$

$T = \{1, 3, 5, 7, 9, 11\}$



Complete the Venn diagram.

[2]

24 In a class of 30 students, 13 travel to school by bus.

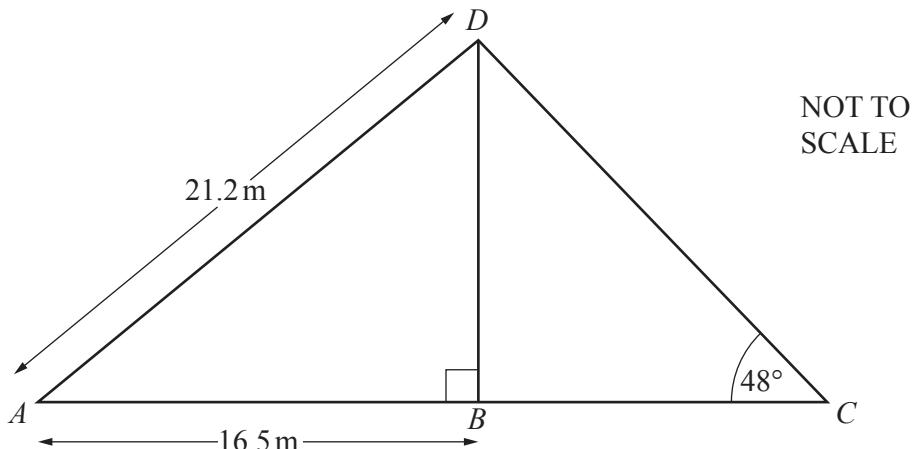
There are 570 students in the school.

Find the expected number of students in the school who travel by bus.

$\dots$  [2]

**Question 25 is printed on the next page.**

25



The diagram shows a flagpole,  $BD$ , held by two ropes,  $AD$  and  $CD$ .

$ABC$  is a straight line and angle  $ABD = 90^\circ$ .

$AD = 21.2$  m,  $AB = 16.5$  m and angle  $BCD = 48^\circ$ .

(a) Show that the height of the flagpole  $BD$  is 13.3 m, correct to 1 decimal place.

[3]

(b) Calculate the length of the rope  $CD$ .

$$CD = \dots \text{ m} \quad [3]$$

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