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MATHEMATICS0580/12

Paper 1 (Core)May/June 2024

1 hour

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

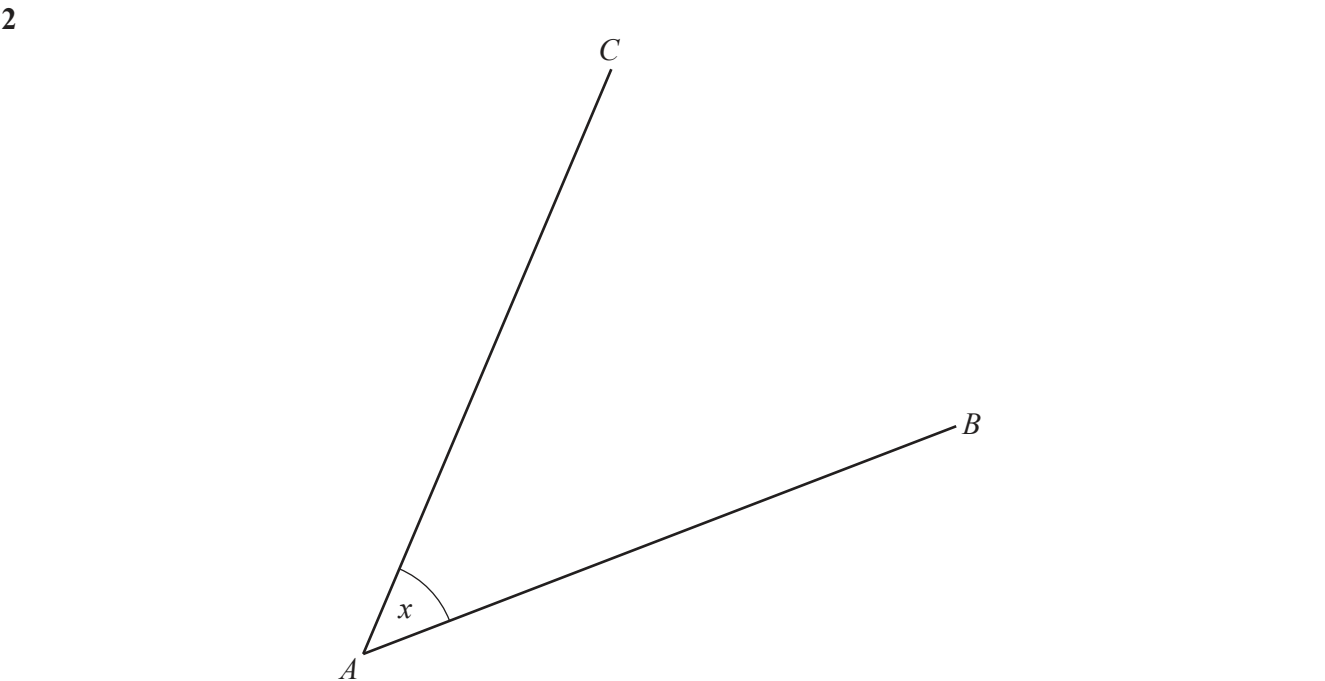
- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction 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 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 [].

2

1 Write the number 31 072 000 in words.
..... [1]



(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.

$\frac{6}{7}$

8.6×10^{-1}

$\frac{11}{13}$

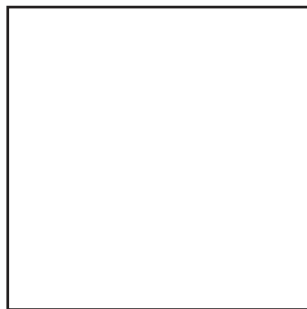
86.5%

..... < < < [2]

smallest

3

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°C .
The temperature at noon is 25°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]

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.

.....

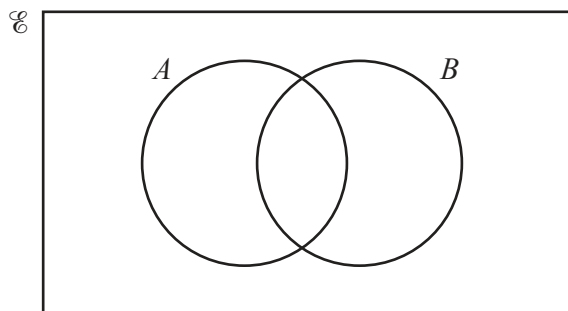
[2]

5

- 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 π .

..... cm [3]

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

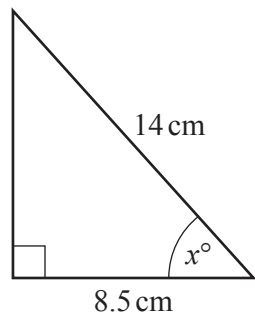
Work out the value of h .

$h =$ [2]

17 Write 174 000 in standard form.

..... [1]

18



NOT TO
SCALE

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 .

$x = \dots\dots\dots$ [1]

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

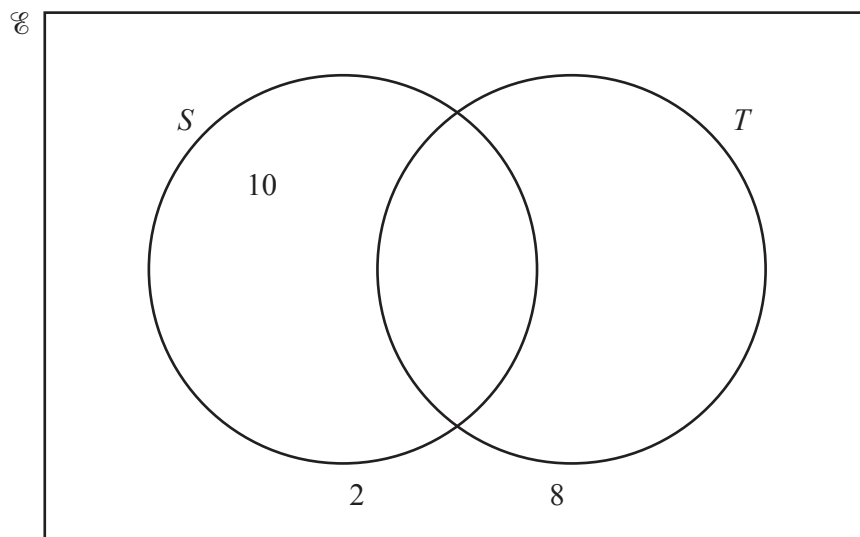
Complete this statement about the value of l .

$\dots\dots\dots \leq l < \dots\dots\dots$ [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.

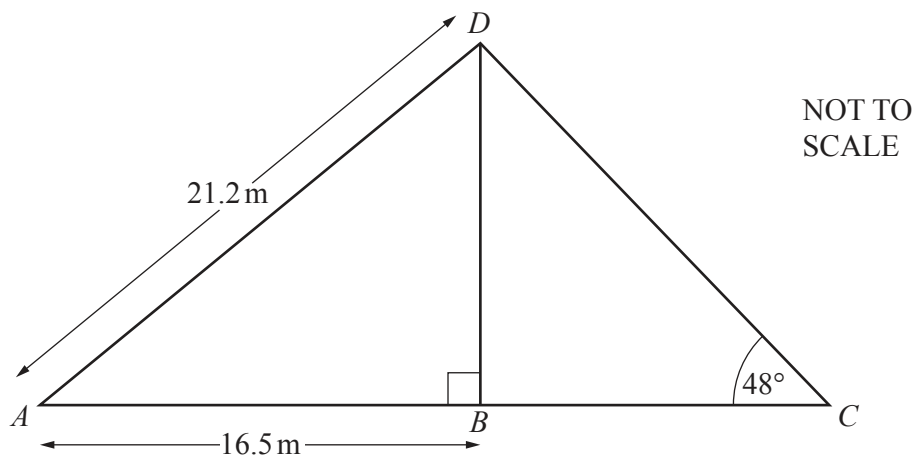
Find the expected number of students in the school who travel by bus.

$\dots\dots\dots$ [2]

Question 25 is printed on the next page.

8

25



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

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

$AD = 21.2\text{ m}$, $AB = 16.5\text{ m}$ 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 .

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

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