Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

6993889449

MATHEMATICS **0580/13**

Paper 1 (Core) **October/November 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 **16** pages. Any blank pages are indicated.

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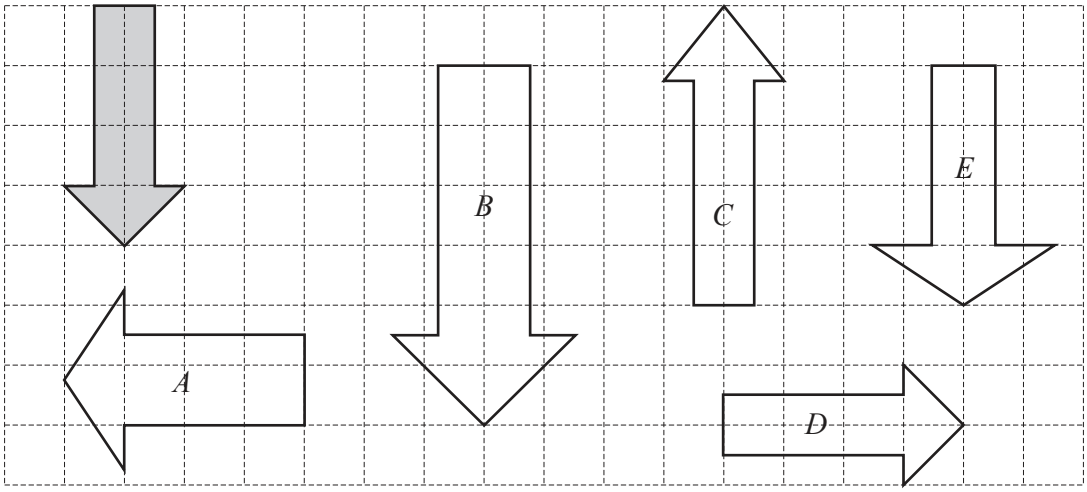
1



Write down the letter of the shape that is congruent to the shaded shape.

..... [1]

2 Write down

(a) all the factors of 32

..... [2]

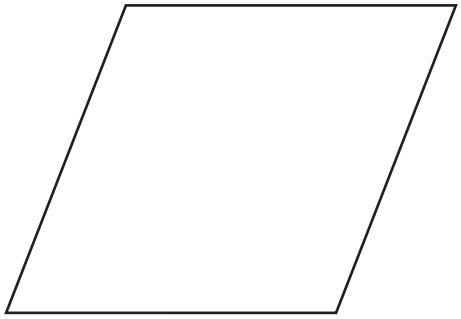
(b) the reciprocal of $\frac{1}{8}$

..... [1]

(c) the value of the 7 in the number 473 285.

..... [1]

3



Draw the lines of symmetry on this rhombus. [2]

4

61	63	64	66	68	69

From this list, write down

(a) a cube number

..... [1]

(b) a prime number.

..... [1]

5 Tara goes on a journey by train.
The train leaves at 0648.
The journey takes 12 hours and 35 minutes.

Find the time when Tara arrives.

..... [1]

6 Jamie records the masses of two samples of oranges, type A and type B.
The stem-and-leaf diagram shows the mass, in grams, of each of 30 oranges of type A.

17	6 8 8 9
18	0 1 2 2 4 7
19	1 2 2 3 6 7 8
20	0 2 5 5 5 6 7 7 8
21	1 5 6 8

Key: 17 | 6 represents 176 grams

(a) Complete the table to show the range for type A oranges.

	Type A	Type B
Mean (g)	195.7	215.8
Range (g)		35

[1]

(b) Use the information in the table to write down two comments comparing the masses of type A oranges with the masses of type B oranges.

1. .....

.....

2. .....

.....

[2]

7 In triangle LMN, $LN = 7.5$ cm and $MN = 8$ cm.

(a) **Using a ruler and compasses only**, construct triangle LMN.
Leave in your construction arcs.
The line LM has been drawn for you.

[2]

(b) Write down the mathematical name for this type of triangle.

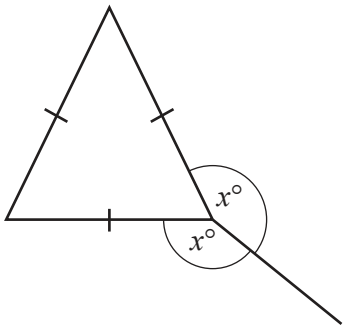
..... [1]

8 The surface area of a cube is 73.5 cm^2.

Find the length of one side of the cube.

..... cm [2]

9



NOT TO SCALE

The diagram shows an equilateral triangle.

Find the value of x.

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

10 $\mathbf{a} = \begin{pmatrix} 4 \\ 9 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -6 \\ 1 \end{pmatrix}$ $\mathbf{c} = \begin{pmatrix} 13 \\ -2 \end{pmatrix}$

Work out.

(a) $\mathbf{a} + \mathbf{b}$

( ) [1]

(b) $3\mathbf{c}$

( ) [1]

11 Factorise completely.

$$15v^2 - 3v$$

..... [2]

12 Rama asks a group of students how they travel to school.
The table shows the probability of how a student, chosen at random, travels to school.

	Bus	Walk	Car	Other
Probability	0.4	0.32	0.17	

(a) Complete the table.

[2]

(b) There are 1800 students at the school.

Find the expected number of students that walk to school.

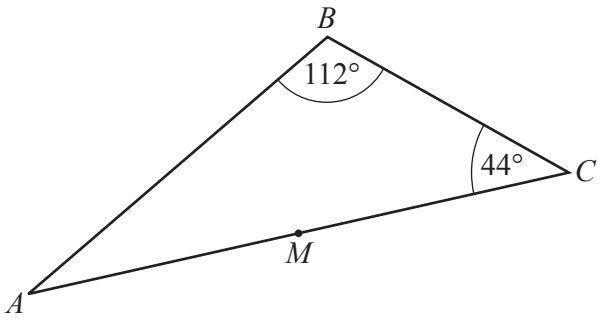
..... [1]

13 **Without using a calculator**, work out $1\frac{5}{6} \div \frac{11}{15}$.

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

..... [3]

14



NOT TO SCALE

The diagram shows triangle ABC.
M is the midpoint of AC.

Triangle ABC is rotated 180° about centre M.
The image and the original triangle together form a quadrilateral $ABCD$.

(a) Write down the mathematical name of the quadrilateral $ABCD$.

..... [1]

(b) Find angle BAD.

Angle BAD = ... [2]

15 Shubhu invests $750 in a savings account for 5 years.
The account pays simple interest at a rate of 1.8% per year.

Calculate the total interest she earns during the 5 years.

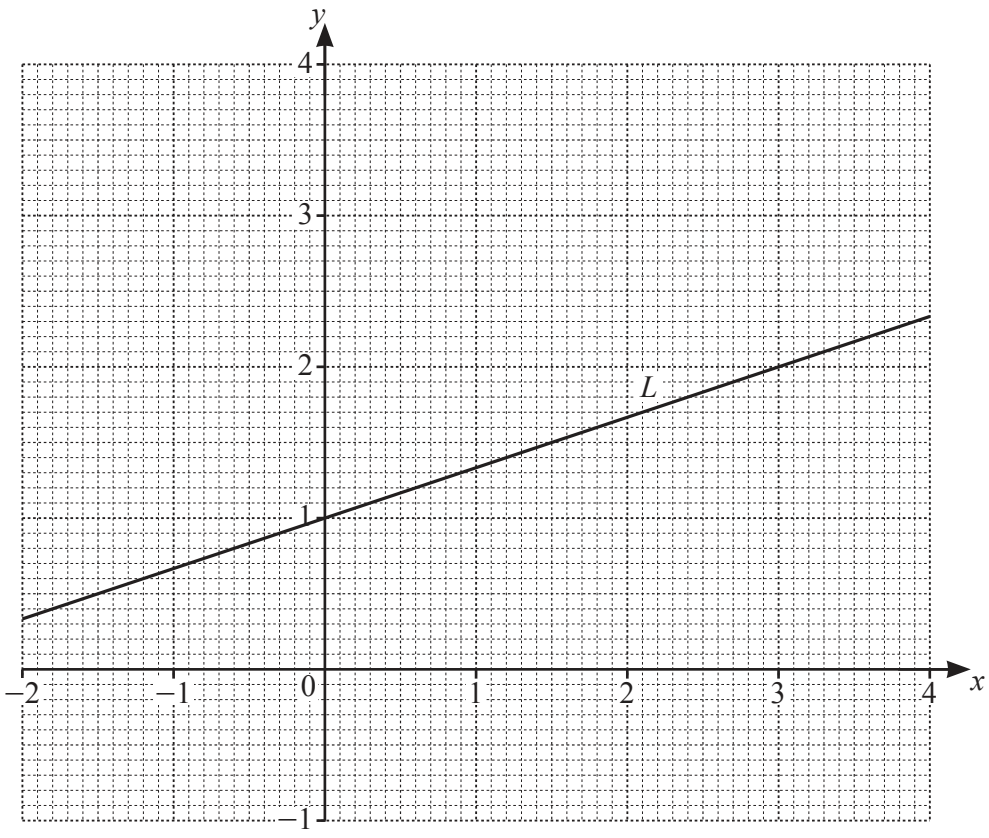
$ ..... [2]

16 Solve the equation.

$$5x + 7 = 9x - 3$$

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

17



(a) Find the equation of line L in the form $y = mx + c$.

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

(b) On the grid, draw a line that is perpendicular to line L. [1]

18 A bar of chocolate costs \$3 and a bag of sweets costs \$5.

Write down an expression for the total cost, in dollars, of x bars of chocolate and y bags of sweets.

\$ ..... [2]

19 **(a)** A bag contains these cards.

1	7	3	9	4	5	2

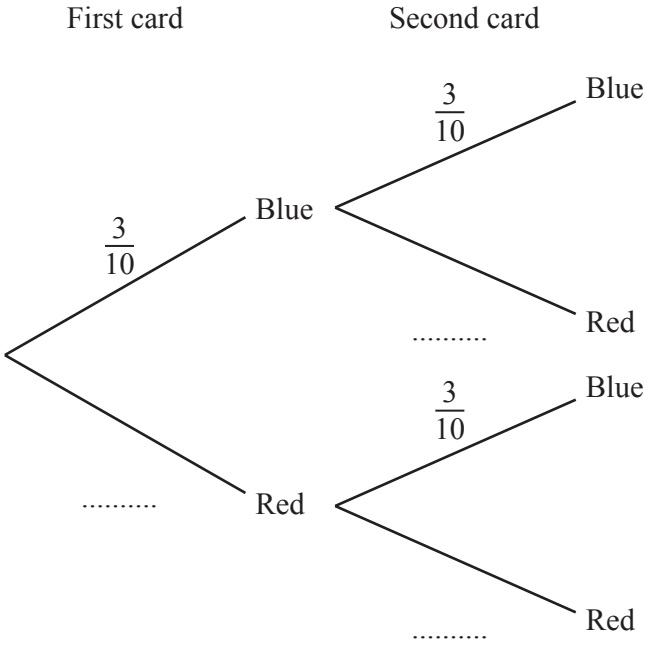
One of these cards is picked at random.

Find the probability that the number on the card is greater than 3.

..... [1]

(b) A box contains 3 blue cards and 7 red cards.
Kim picks one card at random, notes its colour and then replaces it in the box.
She then picks another card at random.

(i) Complete the tree diagram.

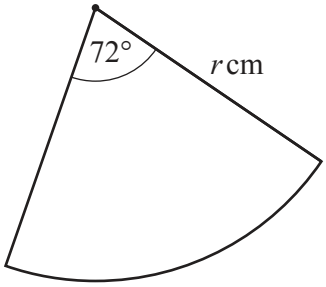


[1]

(ii) Work out the probability that both of the cards Kim picks are blue.

..... [2]

20



NOT TO SCALE

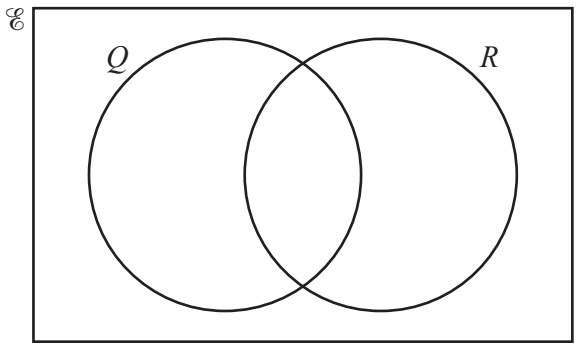
The diagram shows a sector of a circle with radius r cm and sector angle 72°.
The arc length is 9.35 cm.

Calculate the value of r.

$r =$ ..... [2]

21 $\mathscr{E} = \{2,\ 4,\ 8,\ 9,\ 10,\ 12\}$
$Q = \{\text{square numbers}\}$
$R = \{\text{multiples of 4}\}$

(a) Use this information to complete the Venn diagram.



[2]

(b) Write down $\text{n}(Q \cap R)$.

..... [1]

22 Find the highest common factor (HCF) of 48 and 80.

..... [2]

23 Solve the simultaneous equations.
You must show all your working.

$$3x + 5y = 23$$
$$6x - 4y = 11$$

$x =$ .....

$y =$ ..... [3]

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