Cambridge Assessment International Education

Cambridge IGCSE™

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CENTRE NUMBER						CANDIDATE NUMBER				

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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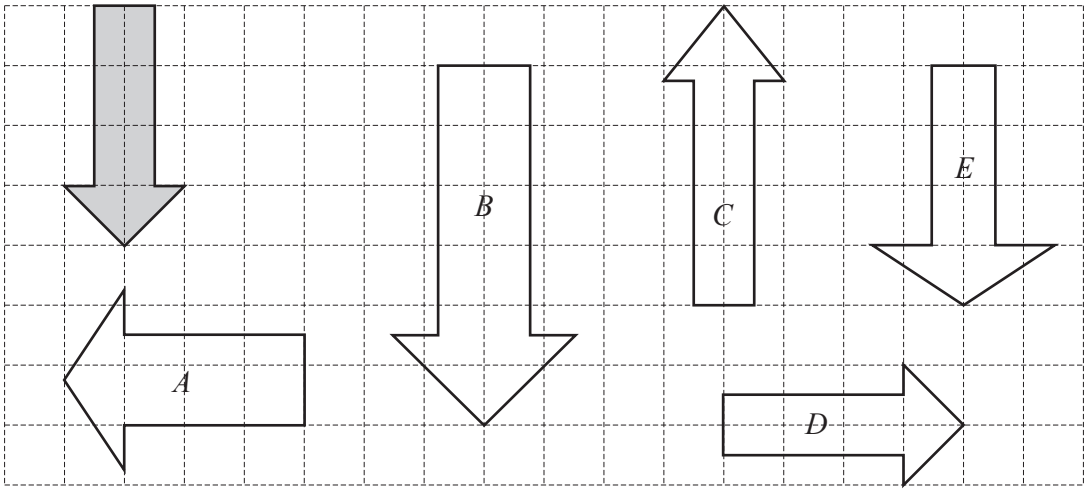
1



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]

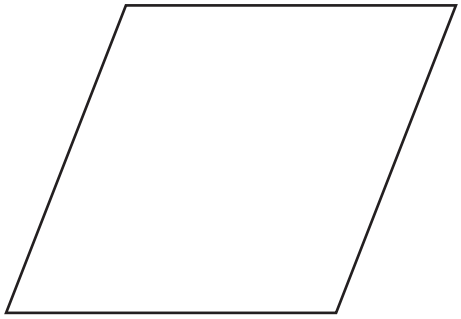
(b) the reciprocal of $\frac{1}{8}$

..... [1]

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

..... [1]

3



View solution

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

View solution

..... [1]

(b) a prime number.

View solution

..... [1]

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

View solution

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.

View solution

	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.

View solution

1. .....

.....

2. .....

.....

[2]

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

View solution

(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.

View solution

..... [1]

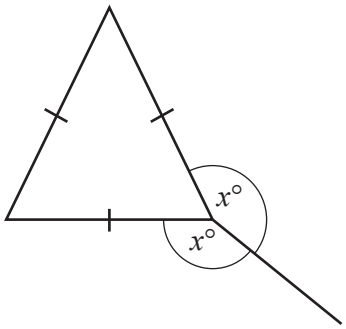
8 The surface area of a cube is 73.5 cm^2.

View solution

Find the length of one side of the cube.

..... cm [2]

9



NOT TO SCALE

View solution

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

View solution

( ) [1]

(b) $3\mathbf{c}$

View solution

( ) [1]

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11 Factorise completely.

$$15v^2 - 3v$$

View solution

..... [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.

View solution

[2]

(b) There are 1800 students at the school.

Find the expected number of students that walk to school.

View solution

..... [1]

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

View solution

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

..... [3]

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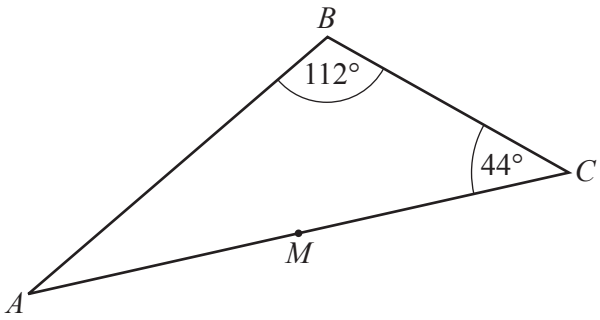
14



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 $ABCD$.

View solution

..... [1]

(b) Find angle BAD.

View solution

Angle BAD = ... [2]

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

View solution

Calculate the total interest she earns during the 5 years.

\$ ..... [2]

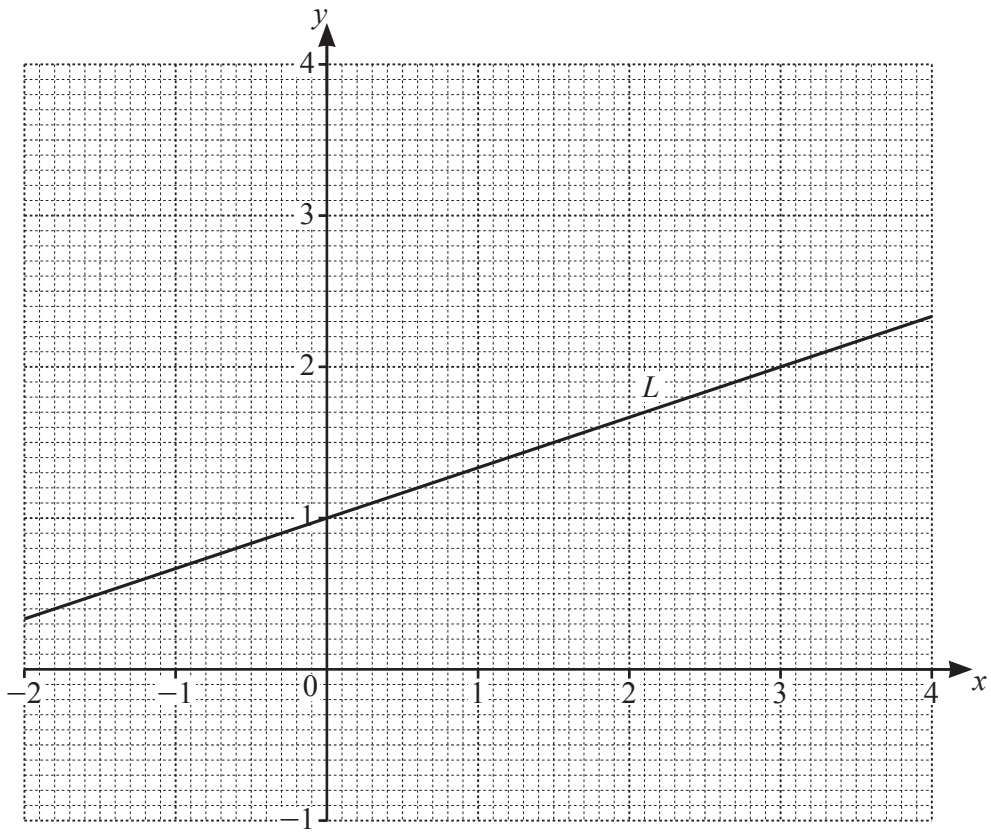
16 Solve the equation.

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

View solution

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

17



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

View solution

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

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

View solution

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.

View solution

\$ ..... [2]

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

View solution

1	7	3	9	4	5	2

One of these cards is picked at random.

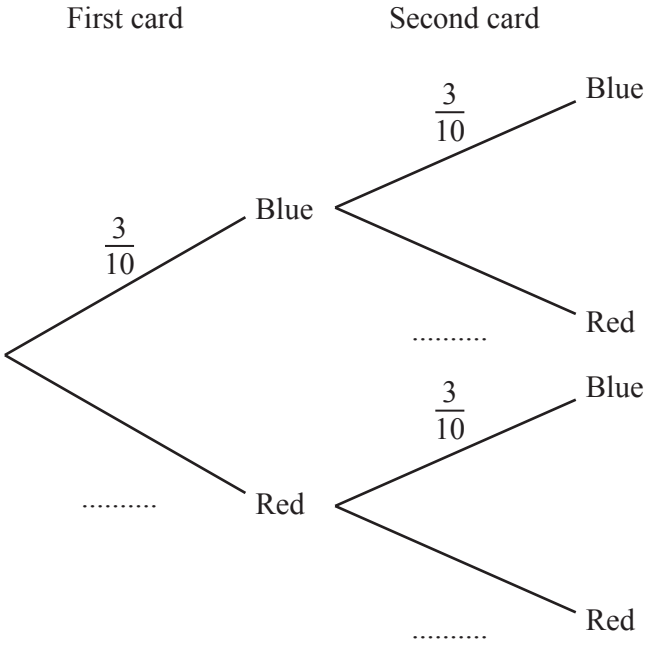
Find the probability that the number on the card is greater than 3.

..... [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.

View solution

(i) Complete the tree diagram.



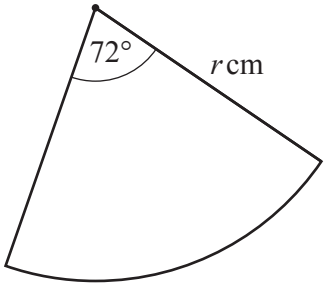
[1]

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

View solution

..... [2]

20



NOT TO SCALE

View solution

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

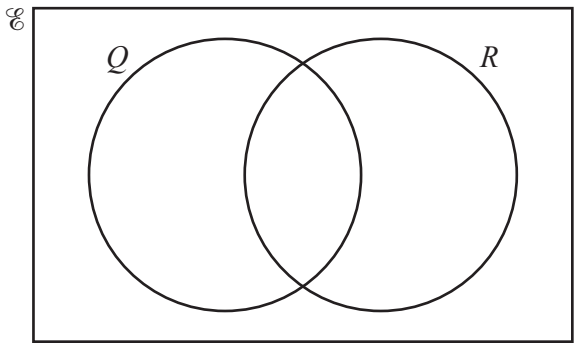
Calculate the value of r.

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

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

View solution

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



[2]

View solution

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

..... [1]

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

View solution

..... [2]

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

View solution

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

$x =$ .....

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

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