Cambridge Lower Secondary Sample Test
For use with curriculum published in September 2020

Mathematics Paper 2
Stage 7

1 hour

Name ....

Additional materials: Calculator
Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS
- Answer **all** questions.
- Write your answer to each question in the space provided.
- You should show all your working on the question paper.
- You may use a calculator.

INFORMATION
- The total mark for this paper is 50.
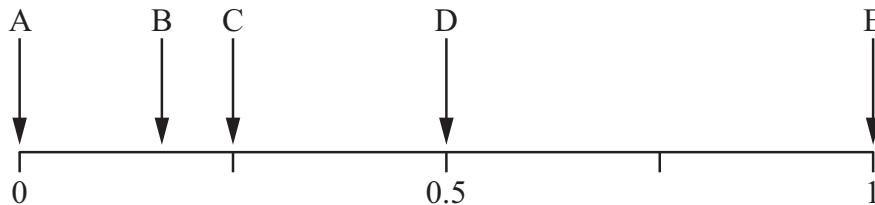- The number of marks for each question or part question is shown in brackets [ ].

1 Find the lowest common multiple (LCM) of 25 and 40

.... [2]

2 Mia has 12 hair clips in a box.
Here are the colours of the hair clips.

- 6 green
- 2 pink
- 3 purple
- 1 blue

She picks one hair clip at random from the box.
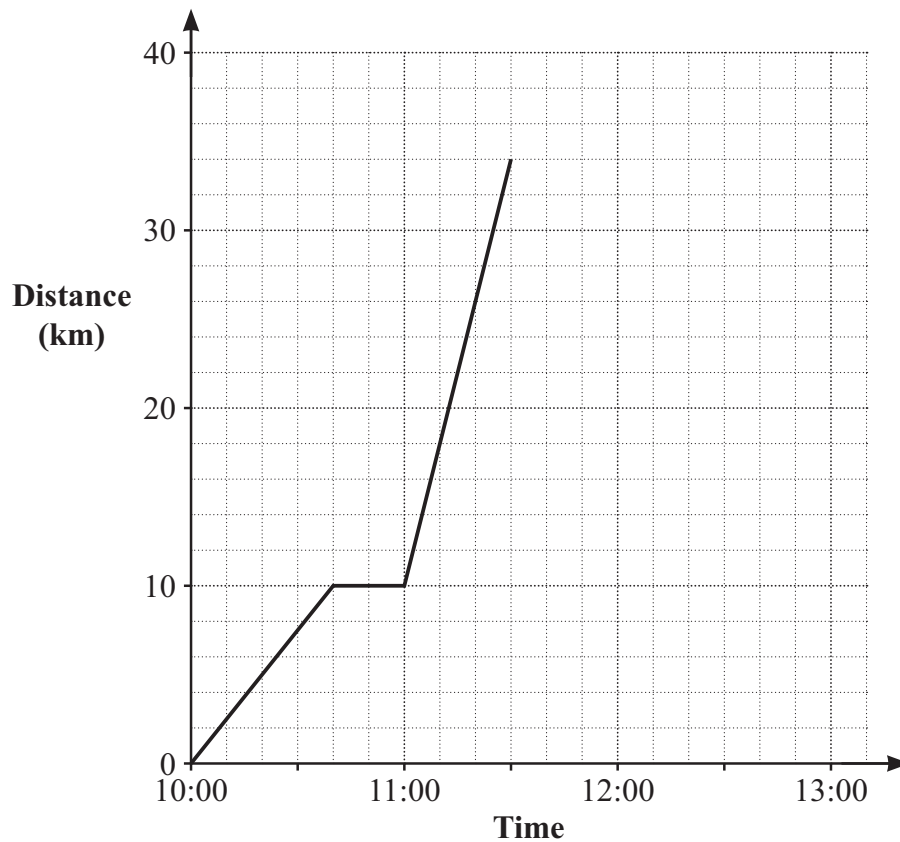

Use the probability scale.

(a) Write the letter of the arrow that shows the probability that she picks a purple hair clip.

.... [1]

(b) Complete this sentence.

The probability that Mia picks a .... colour hair clip is shown

by the letter B. [1]

M/S7/02

3 The diagram shows the distance-time graph for Mike's journey to his friend's house.

(a) Write down the distance Mike travels to his friend's house.

.... km [1]

(b) Mike made one stop on his journey.

Find how many minutes he stopped for.

.... minutes [1]

(c) Write down the times between which Mike's speed was the fastest for this journey.

from .... to .... [1]

4 Simplify.

$$3a + b - 2b + a$$

.... [1]

5 Rajiv is x years old.
Safia is 5 years older than Rajiv.

(a) Write an expression for Safia's age in terms of x.

.... [1]

(b) The sum of their ages is 47

Find Safia's age.

.... [2]

6 (a) Write 4.146 correct to 1 decimal place.

.... [1]

(b) Write 12.104 correct to 2 decimal places.

.... [1]

7 **(a)** Expand.

$$4(7 - 2x)$$

.... [1]

(b) Solve.

$$3x - 7 = 44$$

$x =$ .... [2]

8 **(a)** Draw a ring around each letter that has rotational symmetry of order 2

A   H   K   D   W   I

[1]

(b) Name the quadrilateral that has both these properties
- 4 lines of symmetry
- rotational symmetry order 4

.... [1]

9 The table shows the shoe sizes of players in a football club.

Shoe size	Frequency
9	2
10	7
11	3
12	8

(a) Find the mode.

.... [1]

(b) Find the median.

.... [1]

(c) Work out the mean.

.... [2]

10 Draw a ring around the equation of each line that is parallel to the x-axis.

$$y = 3 \qquad x = -5 \qquad x = y \qquad -2 = y \qquad 10 = x$$

[1]

11
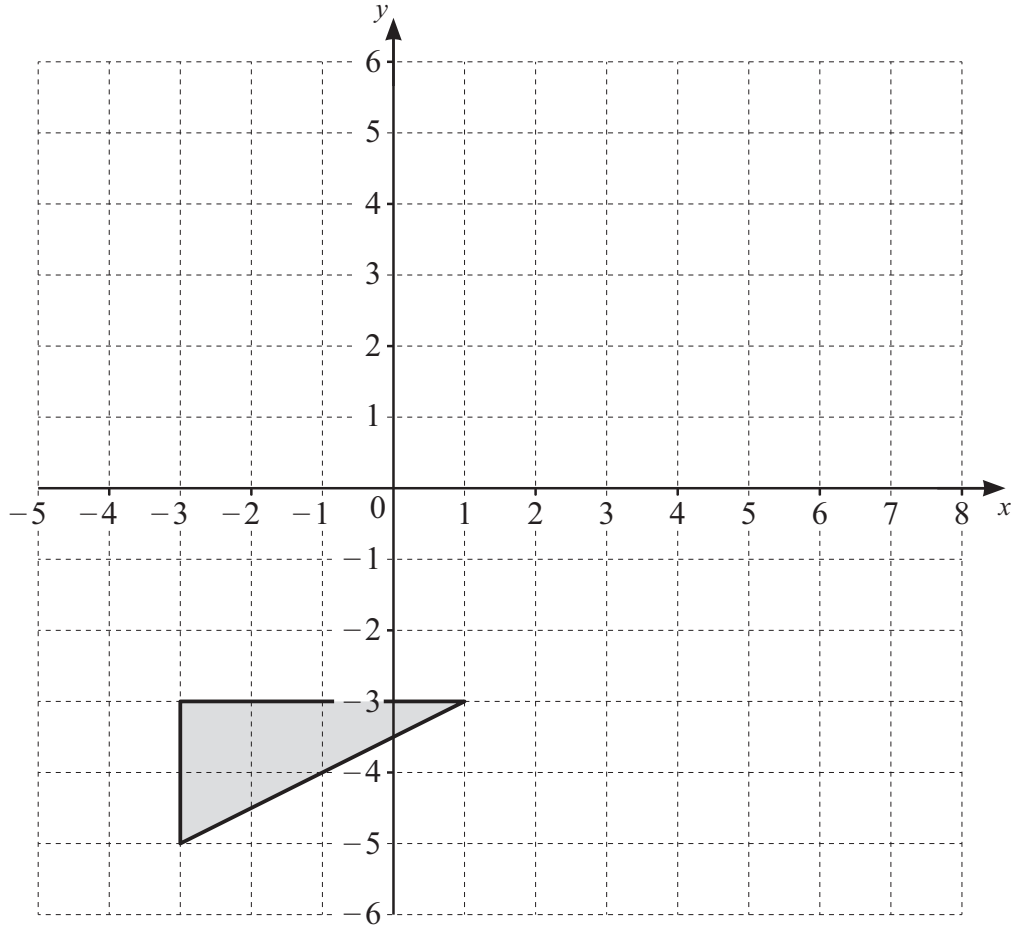
(a) Reflect the shaded triangle in the *x*-axis. [1]

(b) Rotate the shaded triangle by 180° around the point (2, –3). [2]

12 Write a number in each box to complete the statements.

$$\sqrt[3]{\boxed{}} = 5$$

$$49 = 7^{\boxed{}}$$

[1]

13 Write down the *n*th term for this number sequence.

$$4, \quad 8, \quad 12, \quad 16, \quad 20, \quad \ldots$$

.... [1]

14 *AB* and *CD* are parallel lines.
EF is a straight line.
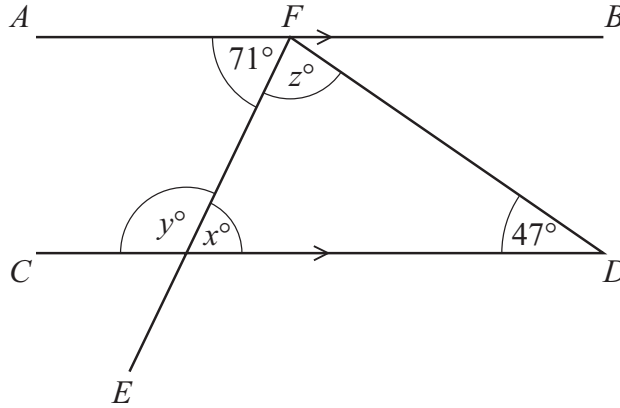
NOT TO
SCALE

Find the values of *x*, *y* and *z*.

x = ...

y = ...

z = ...

[3]

15
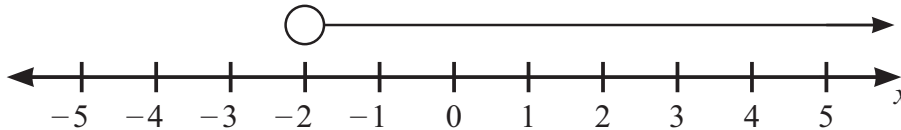
Write the inequality represented on the number line.

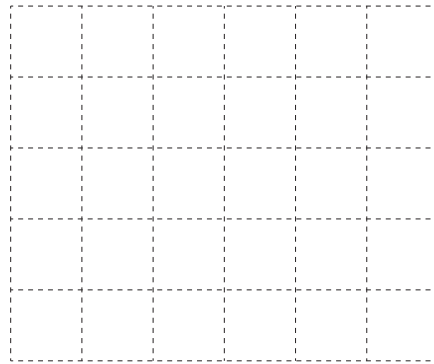... [1]

16 This shape is made from 8 one centimetre cubes.
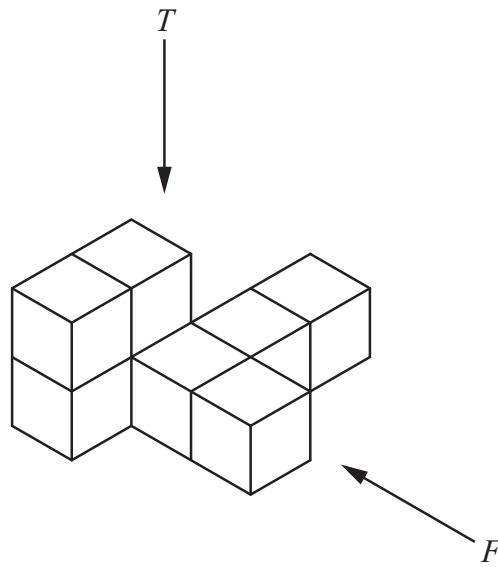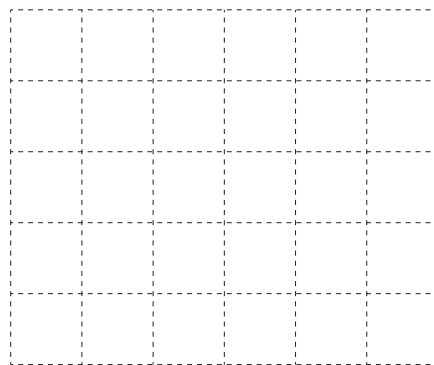

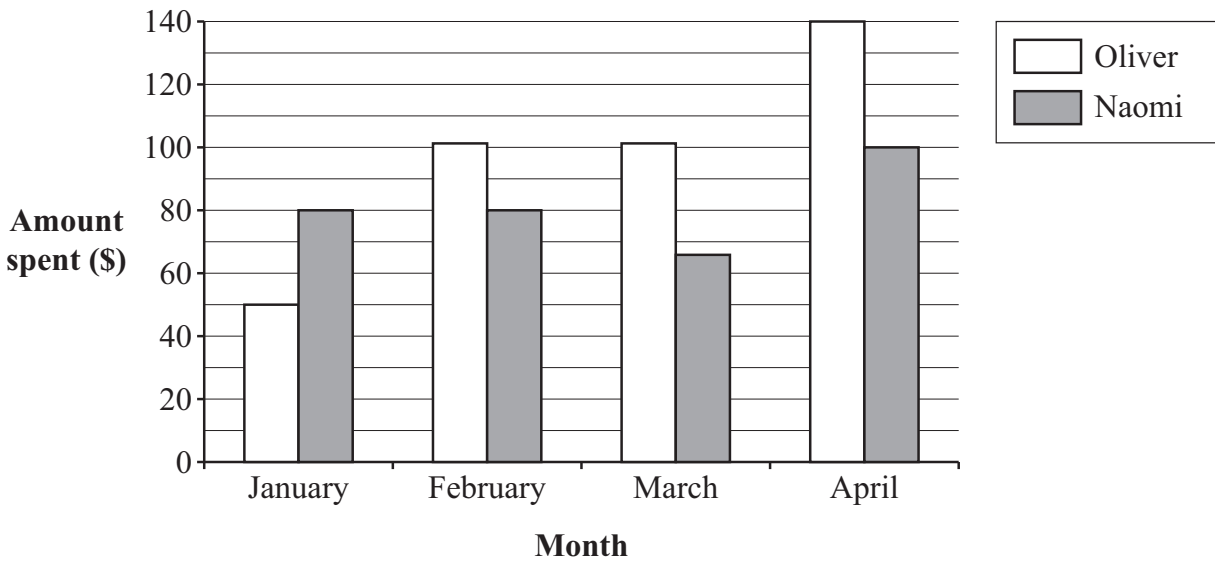**(a)** Draw the top view (from *T*).

[1]

(b) Draw the front view (from *F*).

[1]

17 The graph shows the amounts, in dollars, Oliver and Naomi spend on fuel each month.

(a) Complete these sentences.

The month that has the biggest difference in the amount they spend is ....

The difference between the amount Oliver spends and the amount Naomi spends in

this month is $ ....   [1]

(b) Write the fraction of these months when the total amount Naomi and Oliver spend is more than $160

.... [1]

(c) Find the amount Naomi spends in January as a percentage of the amount Oliver spends in January.

.... % [2]

18 Hassan and Lily share $250 in the ratio 3 : 7

(a) Write down the fraction that Hassan receives.

.... [1]

(b) Hassan gives $15 of **his share** to his mother.

What fraction of Hassan's share does she receive?
Give your answer in its simplest form.

.... [3]

19 A team of four people run a 400 m race.
Here are their times in seconds.

45   62   63   66

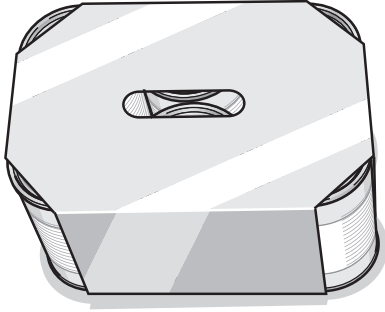**(a)** Give a reason why the mode is not a good average to represent these times.

.... [1]

(b) Give a reason why the mean is not a good average to represent these times.

.... [1]
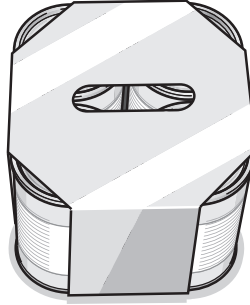
20 Carlos buys tins of soup.
  The shop has three offers.

Pack of 6 for $2.90   Pack of 4 for $1.80   One tin for $0.49

The tins are identical.

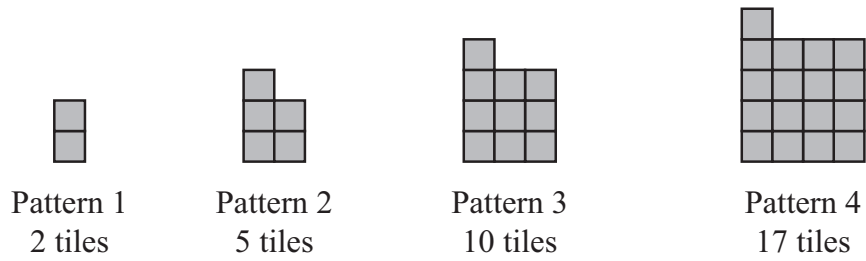Tick (✓) the offer that represents the best value for money.

Pack of 6 ☐   Pack of 4 ☐   One tin ☐

Show your working.

[3]

21 Angelique is making a sequence of patterns using tiles.

Pattern 1	Pattern 2	Pattern 3	Pattern 4
2 tiles	5 tiles	10 tiles	17 tiles

(a) Angelique says that there is a pattern in this sequence that will need 102 tiles.

Tick (✓) to show if she is correct or not correct.

correct ☐   not correct ☐

Give a reason for your answer.

....

.... [1]

(b) Angelique has 140 tiles.

Work out how many more tiles she needs to make both Pattern 8 **and** Pattern 9

.... [2]

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