

# Cambridge Lower Secondary Sample Test

## For use with curriculum published in September 2020

# Mathematics Paper 1

## Stage 7

1 hour

Name .....

Additional materials: 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 are **not** allowed to 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 Work out.

$$0.4 \times 600$$

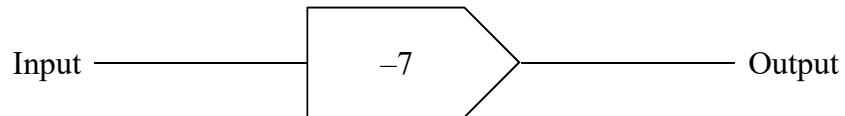
..... [1]

2 Calculate.

$$9 + (1 + 5^2) \times 3$$

..... [1]

3 Here is a function machine.



(a) Find the output when the input is 5

..... [1]

(b) Find the input when the output is 10

..... [1]

- 4 Mike says that  $4.02 \times 1000 = 4.02000$   
Mike is **not** correct.

Complete these sentences.

The mistake Mike has made is .....

.....

.....

The correct answer is .....

[1]

- 5 Draw a ring around the mathematical words that are straight line lengths.

diameter      circumference      centre      radius

[1]

- 6 Use one of these symbols

<      >      =

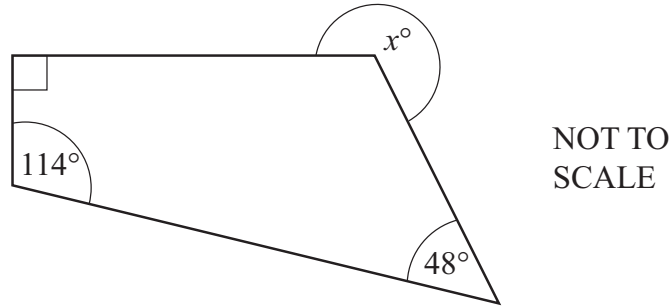
to make each statement correct.

2.41 ..... 2.401

$1\frac{4}{5}$  ..... 1.75

[1]

7



Work out the value of  $x$ .

$$x = \dots\dots\dots [2]$$

8 A computer selects a letter at random from the word below.

**B    A    N    A    N    A**

Complete these sentences.

The probability that the computer selects the letter ..... is  $\frac{1}{3}$

The probability that the computer does **not** select the letter **B** is .....

The probability that the computer selects the letter **M** is .....

The probability that the computer selects the letter **A** is ..... **percent.**

[3]

- 9 Mia hires a bike.  
The hire cost is \$2.50 for each hour.

(a) Work out the cost of hiring the bike for 7 hours.

\$ ..... [1]

(b) Write down a formula for the total cost,  $C$ , of hiring bike for  $h$  hours.

$C =$  ..... [1]

- 10 Work out.

$$\frac{6}{11} \div \frac{3}{5}$$

Give your answer as a fraction in its simplest form.

..... [2]

11 A 3D shape has 2 faces and 1 curved surface.

Write down the name of this shape.

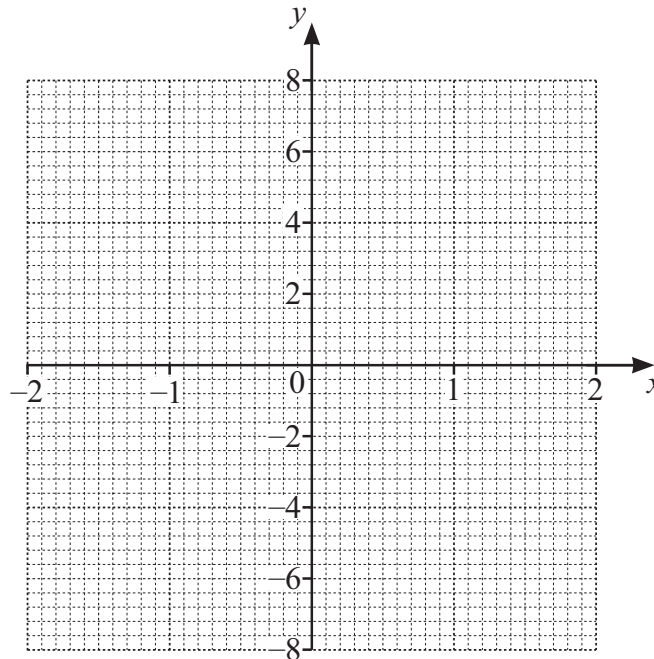
..... [1]

12 (a) Complete the table of values for the equation  $y = 4x$ .

$x$	-2	-1	0	1	2
$y$		-4	0	4	

[1]

(b) On the grid, draw the graph of  $y = 4x$ .



[2]

**13** A cuboid has length 4 cm, width 5 cm and height 30 mm.

- (a) Find the volume of the cuboid.  
Give your answer in  $\text{cm}^3$ .

.....  $\text{cm}^3$  [2]

- (b) Work out the surface area of the cuboid.  
Give your answer in  $\text{cm}^2$ .

.....  $\text{cm}^2$  [3]

**14** Draw a ring around **each** number that is a multiple of 3

237

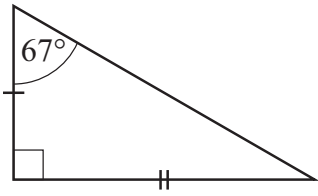
343

905

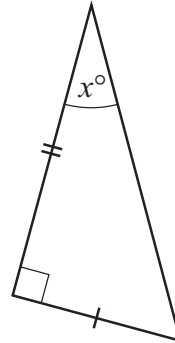
558

[1]

15 These two triangles are congruent.



NOT TO  
SCALE



Find the value of  $x$ .

$$x = \dots\dots\dots [2]$$

16 (a) Write 0.375 as a fraction in its simplest form.

$$\dots\dots\dots [2]$$

(b) Aiko spends 30 minutes on homework and 85 minutes reading.

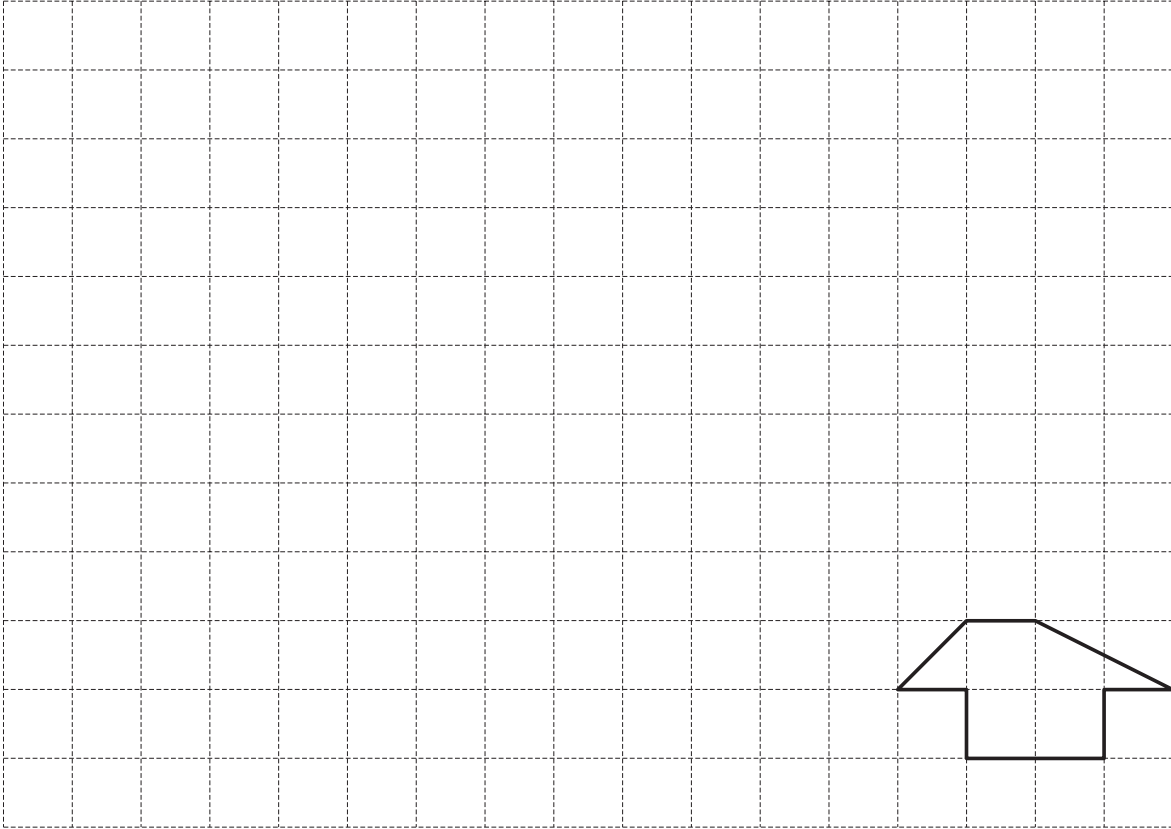
Write as a ratio in its simplest form

the time Aiko spends on homework : the time Aiko spends reading

$$\dots\dots\dots : \dots\dots\dots [1]$$



17 The diagram shows an octagon.



Draw an enlargement of the octagon by scale factor 3

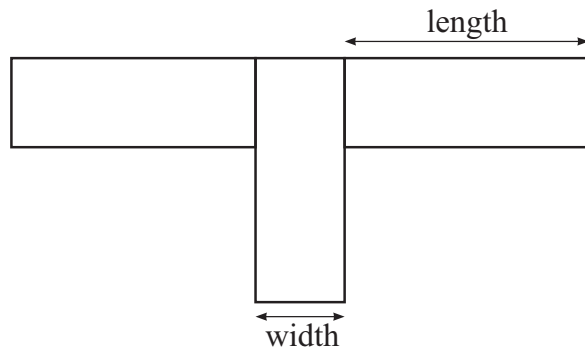
[2]

18 A map has a scale of 1 : 1 000 000  
The distance on the map between two towns is 6 cm.

Find the actual distance between the two towns.  
Give your answer in kilometres.

..... km [2]

- 19 The diagram shows a shape made from three identical rectangles.



NOT TO  
SCALE

Each rectangle has a length of 7 cm.  
The width of each rectangle is 5 cm shorter than the length.

Find the perimeter of the shape.

..... cm [2]

- 20 Work out.

$$1\frac{3}{5} + \frac{4}{7}$$

Give your answer as a mixed number in its simplest form.

..... [3]

- 21 The point  $P$  has coordinates  $(2, 9)$ .  
The point  $Q$  has coordinates  $(-3, 9)$ .

Find the distance  $PQ$ .

..... [1]

- 22 (a) Explain why 27 is a cube number but **not** a square number.

.....  
..... [1]

- (b) Find a two-digit number that is both a square number and a cube number.

..... [1]

- 23 These are the heights, in centimetres, of 6 plants.

28      27      24      25      11      23

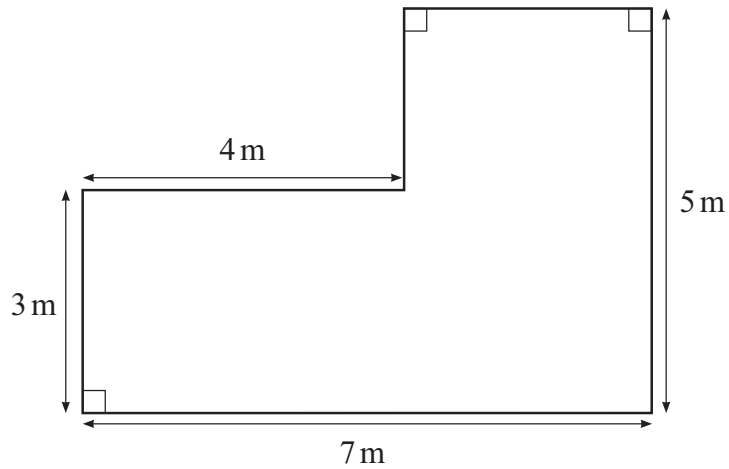
The mean height is 23 cm.  
The plant with height 11 cm is removed.

Tick (✓) the correct statement for the mean height of the remaining 5 plants.

- The mean remains the same.
- The mean changes by 11 cm.
- The mean decreases.
- The mean increases.

[1]

24 The diagram shows the floor plan of Pierre's room.



NOT TO  
SCALE

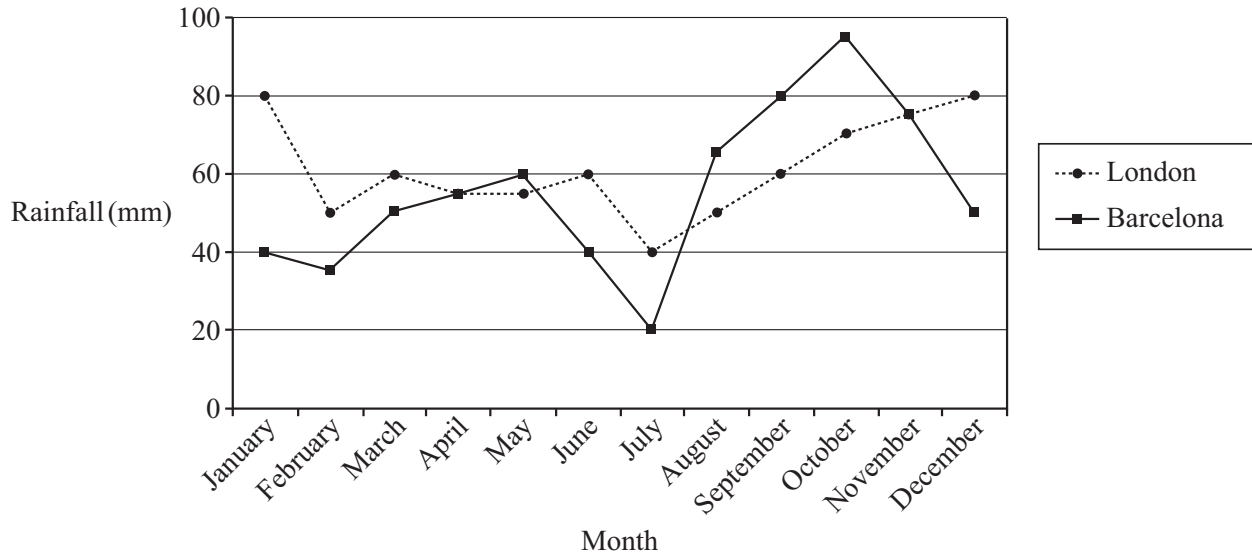
Pierre wants to cover the floor with square tiles.  
Each tile has side length 50 cm.

Pierre says that he will need more than 100 tiles to cover the floor.

Show that he is correct.

[3]

25 This graph shows the monthly rainfall, in millimetres, for London and Barcelona in one year.



(a) Find how many more millimetres of rainfall there was in London than in Barcelona in January.

..... mm [1]

(b) Tick (✓) **all** the correct statements.

London had more rainfall than Barcelona in 7 of the months.

Barcelona's highest monthly rainfall was in November.

There were 2 months when the rainfall was the same in both cities.

The lowest monthly rainfall for both cities was in July.

[2]

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