Cambridge Assessment International Education

Mathematics

Stage 8

Paper 1 **2024**

Cambridge Lower Secondary Progression Test

Name

Class

Date

1 hour

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 Draw a ring around the part of a circle that is **not** a straight line.

diameter chord radius circumference tangent

[1]

2 Work out.

-6×-13

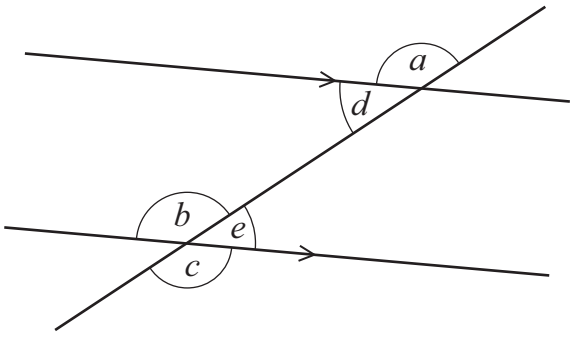
..... [1]

3 Draw a ring around the letter that is the subject of the formula $\pi dh + 2\pi r^2 = A$.

d h r A

[1]

4 The diagram shows a pair of parallel lines with a straight line crossing them and some angles marked with letters.



Complete these sentences with the correct letters.

Angles ..... and ..... are alternate angles.

Angles ..... and ..... are corresponding angles.

Angles ..... and ..... are vertically opposite angles.

[2]

5 Complete each of these calculations with the correct whole number.

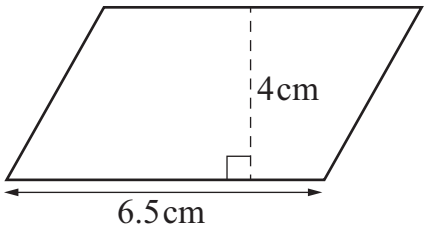
$13^0 =$ .....

$(2^3)^2 =$ .....

$11^{15} \div 11^{13} =$ .....

[3]

6 The diagram shows a parallelogram.



NOT TO SCALE

Work out the area of the parallelogram.

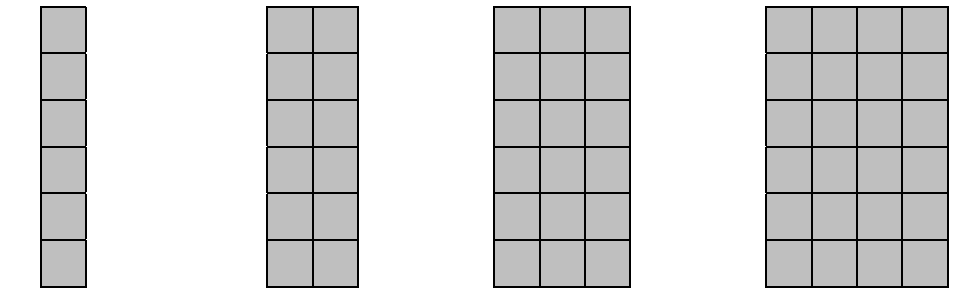
..... cm^2 [1]

7 Naomi draws a regular polygon with exactly 13 lines of symmetry.

Write down the order of rotational symmetry of her polygon.

..... [1]

8 The diagram shows the first four patterns in a sequence made with square tiles.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

Draw a ring around the exact number of tiles that could make a pattern in this sequence.

32 tiles 64 tiles 96 tiles 602 tiles

[1]

9 Mike and Carlos share some money in the ratio 2 : 5

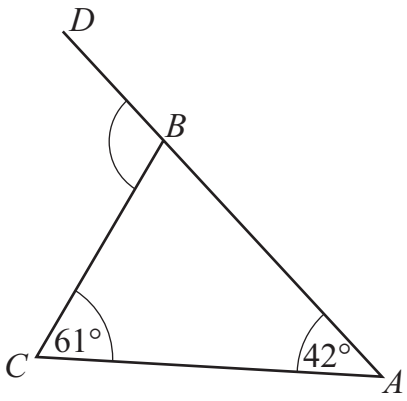
Draw a ring around the correct statement.

Mike gets $\frac{2}{5}$ of the money. Mike gets $\frac{5}{2}$ of the money.

Mike gets $\frac{2}{7}$ of the money. Mike gets $\frac{2}{3}$ of the money.

[1]

10 The diagram shows a triangle ABC.



NOT TO SCALE

ABD is a straight line.

Find angle CBD.

..... ° [1]

11 **(a)** The nth term of a sequence is $\frac{n}{2} + 5$

Work out the 6th term of the sequence.

..... [1]

(b) Here are the first five terms of a different sequence.

2, 8, 14, 20, 26

Find the nth term of this sequence.

..... [2]

12 Here are the names of some quadrilaterals.

K

squares parallelograms rhombuses kites

Choose the correct word from the list to complete this statement.

All rectangles are ..... .

[1]

13 **(a)** Oliver writes this calculation.

K

$$1 + 2 \times 5^2 = 75$$

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

Oliver is correct ☐ Oliver is not correct ☐

Explain your answer.

.....

.....

[1]

(b) Work out.

$$\sqrt{3^2 \times 2^3 + 28}$$

..... [2]

14 Draw a bearing of 285° from point X.

[1]

15 Work out.

$$5\frac{7}{12} - 3\frac{3}{4}$$

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

..... [3]

16 M is the point (1, 3).
M is the midpoint of the line AB.

Complete the coordinates for A and B.

$A = (\ -2\ ,\ \ldots\ )$

$B = (\ \ldots\ ,\ 7\ )$

[2]

17 Here is a mathematical statement.

56 kilometres + 4.3 miles = x miles

Work out the value of x.

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

18 Find the value of each expression when $x = -2$ and $y = 5$

$4(y - x) =$ .....

$10y - 3x^2 =$ .....

[2]

19 Jamila has a 6-digit number.

Two of the digits in her number are hidden.

4 ■ ■ 3 5 6

Tick (✓) to show if each of Jamila's statements must be true, could be true or must be false.

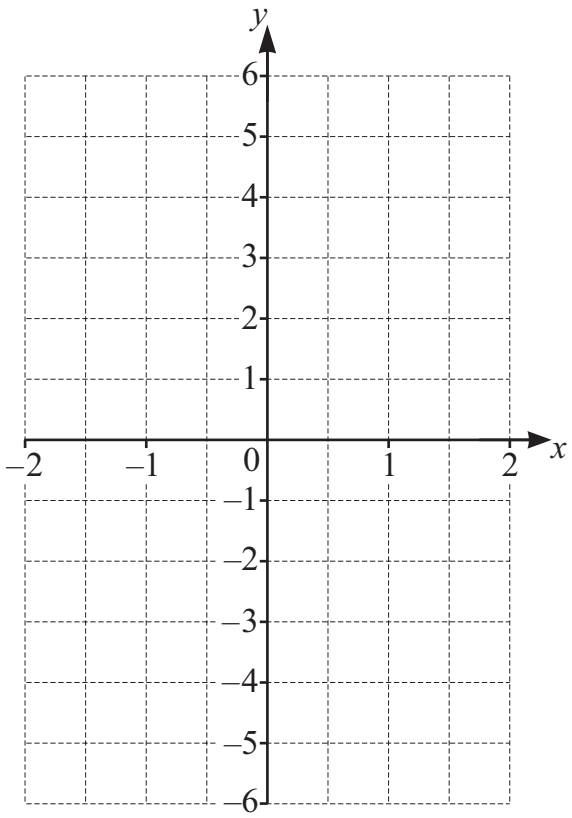
	Must be true	**Could be true**	**Must be false**
My number is divisible by 4			
My number is divisible by 5			
My number is divisible by 8			
My number is divisible by 9			

[2]

20 Complete the table for $y = 2x - 1$

x	–2		2
y		–3	

Draw the graph of $y = 2x - 1$ on the grid.



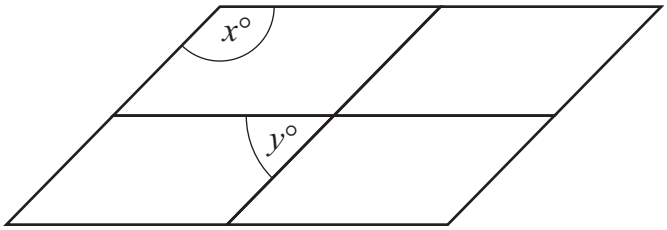
[3]

21 Eva says, 'The highest common factor of 36 and 60 is 6'

Show that she is **not** correct.

[1]

22 The diagram shows a tessellation of four parallelograms with no lines of symmetry.



Write down a possible pair of values for x and y.

$x =$ .....

$y =$ .....

[1]

23 Factorise.

$12x^2 + 18x - 30xy$

..... [2]

24 Complete each box with the correct power.

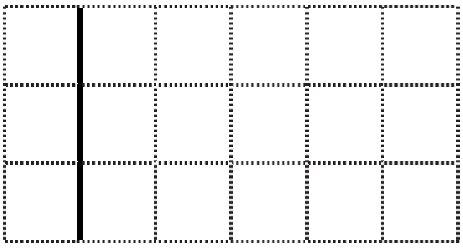
$48 \times 150 = 2^{\square} \times 3^{\square} \times 5^{\square}$

[2]

25 These are the lengths, in centimetres, for a sample of 10 freshwater fish.

6.9 7.6 7.8 6 5.7 6.5 5.1 7.2 7.1 7.8

(a) Complete the stem-and-leaf diagram for this information.



Key: .....

[3]

(b) The table shows information about the lengths of 10 **saltwater** fish in a different sample.

	Saltwater
Median	8.4 cm
Range	5.8 cm

Write **two** comparisons between the distribution of the lengths of the freshwater fish and the distribution of the lengths of the saltwater fish.
Give your comparisons in context.
You **must** include the statistics you use.

1 .....

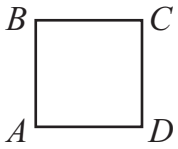
.....

2 .....

.....

[4]

26 Square $ABCD$ has a side length of 5 units.



$ABCD$ is drawn on a grid so that C is at (16, 11).
$ABCD$ is then translated 4 left and 2 down.

Find the coordinates of vertices A and B after this translation.

$A = ($ ..... , ... $)$

$B = ($ ..... , ... $)$

[2]