Cambridge Assessment International Education

# Cambridge Lower Secondary Progression Test

## Mathematics paper 1

Stage 8

*118686431 8*

**55 minutes**

| For Teacher's Use | |
|---|---|
| **Page** | **Mark** |
| **1** | |
| **2** | |
| **3** | |
| **4** | |
| **5** | |
| **6** | |
| **7** | |
| **8** | |
| **9** | |
| **10** | |
| **11** | |
| **12** | |
| **Total** | |

Name .....

Additional materials: Geometrical instruments
Tracing paper (optional)

**READ THESE INSTRUCTIONS FIRST**

Answer **all** questions in the spaces provided on the question paper.

Calculators are **not** allowed.

You should show all your working on the question paper.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 45.

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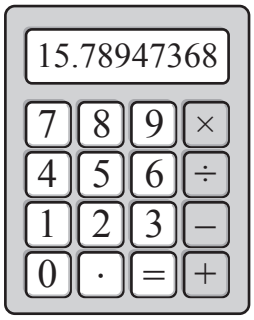
**1** A calculator gives this answer.

$300 \div 19 = 15.78947368$




Round the answer to two decimal places.

..... [1]

**2** Draw a line from each fraction to the equivalent percentage.
The first one has been done for you.

| | |
|---|---|
| $\frac{1}{2}$ | 50% |
| $\frac{2}{5}$ | 35% |
| $\frac{7}{10}$ | 28% |
| $\frac{7}{25}$ | 40% |
| $\frac{7}{20}$ | 70% |

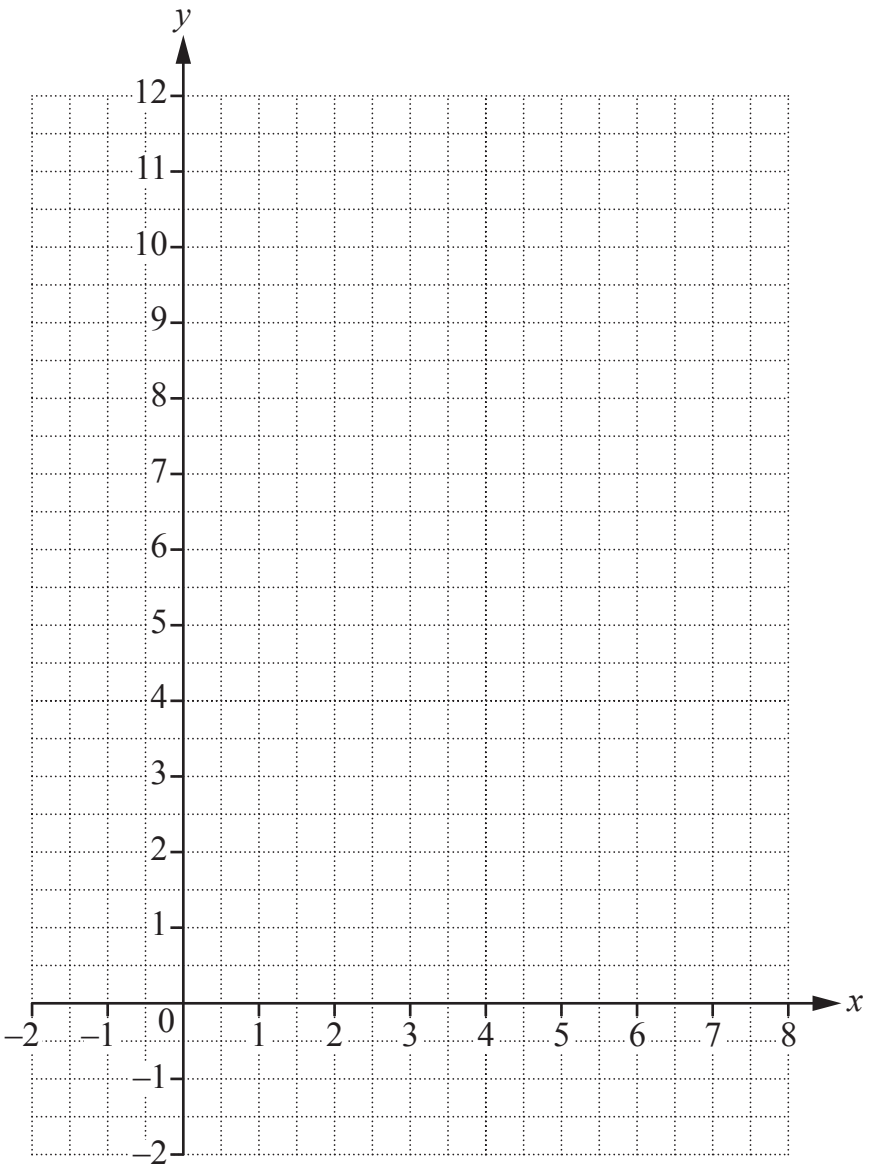
[2]

**3** **(a)** Complete the table of values for $y = 8 - 3x$

| $x$ | –1 | 0 | 2 |
|---|---|---|---|
| $y$ | 11 | | |

[1]

**(b)** Draw the graph of $y = 8 - 3x$ on the grid.




[2]

**4** The diagram shows the square and the cube of a number.

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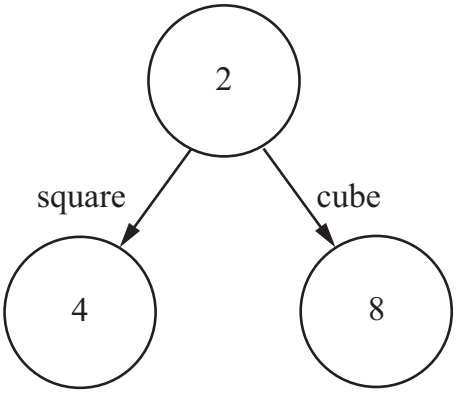
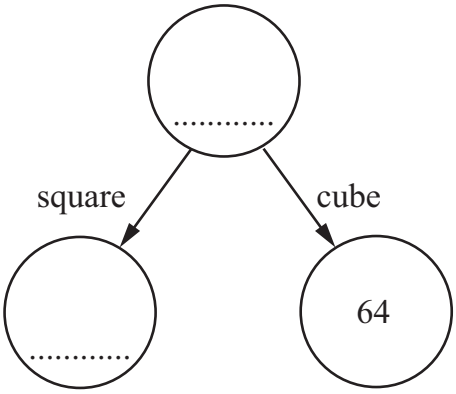



Complete this diagram.




[2]

**5** Complete these calculations.

**(a)** $15 \times 0.02 =$ .....

[1]

**(b)** $14.4 \div$ ..... $= 1.2$

[1]

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**6** Here is a calculation.

$$15 \times \frac{3}{5}$$

Draw a ring around the answer.

$\frac{45}{75}$ 9 25 $15\frac{3}{5}$ 3.6

[1]

**7** An expression for the area of a shape is $6(a + 5)\,\text{cm}^2$.

Work out

**(a)** the area when $a = -2$,

.....$\text{cm}^2$ [1]

**(b)** the value of $a$ when the area is $54\,\text{cm}^2$.

$a =$ ..... [1]

**8** Here are three lengths.

0.0509 km 60.5 m 5700 cm

Order these lengths by completing this statement.

..... > ..... > .....

[1]

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**9** **(a)** Simplify this expression.

$$7x^2 + 9x^2 - x^2$$

..... [1]

**(b)** Expand and simplify this expression.

$$8y - 3(y - 4)$$

..... [2]

**10** Hassan swims in a swimming pool.
The pool is 25 m long.
He swims 60 lengths.

Work out how many **kilometres** he swims.

..... km [2]

**11** The diagram shows triangles $A$ and $B$ on a grid.

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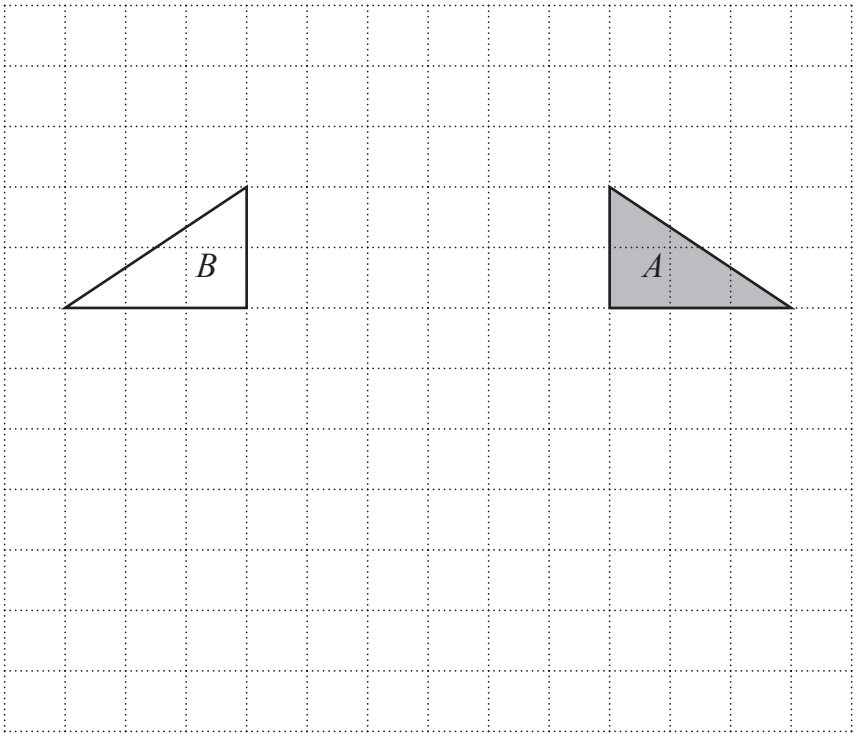


**(a)** Triangle $A$ is reflected to give triangle $B$.

Draw the line of reflection on the grid.

[1]

**(b)** Here are instructions for mapping triangle $A$ onto triangle $C$.

Triangle $A$ — Translate 1 unit left and 4 units down — Triangle $C$

Draw triangle $C$ on the grid.

[1]

**(c)** Complete the instructions for mapping triangle $C$ back onto triangle $A$.

Triangle $C$ — Translate .....
.....
— Triangle $A$

[1]

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**12** Three sisters receive money in the ratio of their ages.

Safia gets $18
Angelique is 6 years old and gets $9
Gabriella is 4 years old.

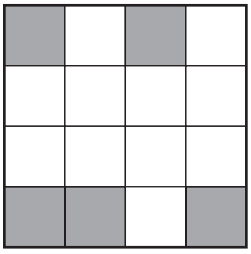
**(a)** Work out how old Safia is.

..... [1]

**(b)** Calculate how much money Gabriella gets.

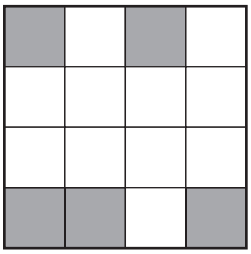
$ ..... [1]

**13** **(a)** Shade **three** more squares so that this shape has rotational symmetry of order four.



[1]

**(b)** Shade **two** more squares so that this shape has one line of symmetry.



[1]

**14** **(a)** Write 28 as a product of its prime factors.

For Teacher's Use

..... [1]

**(b)** Write 210 as a product of its prime factors.

..... [1]

**(c)** Find the highest common factor of 28 and 210

..... [1]

**(d)** Find the lowest common multiple of 28 and 210

..... [1]





[Turn over

For Teacher's Use

**15** Work out.

$15^2 - 5^3$

..... [1]

**16** Find the value of $4x^2 + 3$ when $x = -5$

..... [1]

**17** Work out.

**(a)** $4.3 \div 0.5$

..... [1]

**(b)** $5.4 \div 0.03$

..... [1]

**18** A quadrilateral has both of these properties.

- The diagonals cross at right angles.
- The sides are **not** all the same length.

The quadrilateral is one of those listed below.

Draw a ring around the name of this quadrilateral.

Square Rectangle Parallelogram Rhombus Kite

[1]

**19** $28 \times 67 = 1876$

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Use this fact to work out

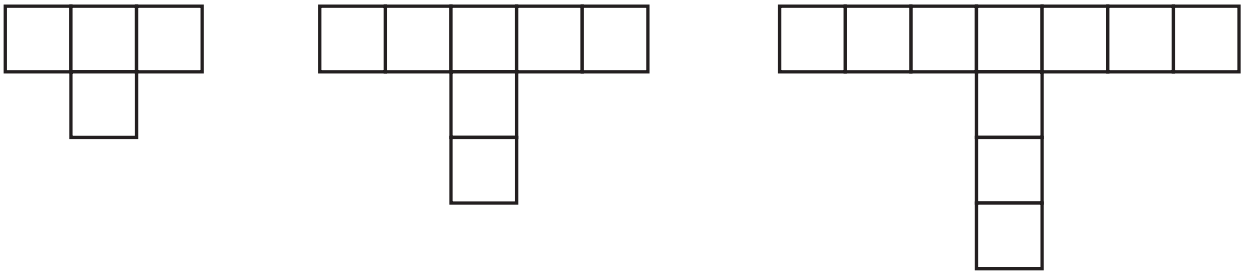
**(a)** $28 \times 68$

..... [1]

**(b)** $14 \times 67$

..... [1]

**20** These are the first three patterns in a sequence.



**Pattern 1**
4 squares

**Pattern 2**
7 squares

**Pattern 3**
10 squares

Work out an expression for the number of squares in the $n$th pattern.

..... [2]

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**21** Change $\frac{5}{12}$ to a recurring decimal.

..... [2]

**22** Complete the statement with a fraction.
Give the fraction in its simplest form.

200 m is ..... of 5 km.

[2]

**23** Work out.

$3\frac{2}{7} - 1\frac{1}{2}$