



# Cambridge Lower Secondary Sample Test

## For use with curriculum published in September 2020

# Mathematics Paper 1

## Stage 8

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.

$$-9 \times -12$$

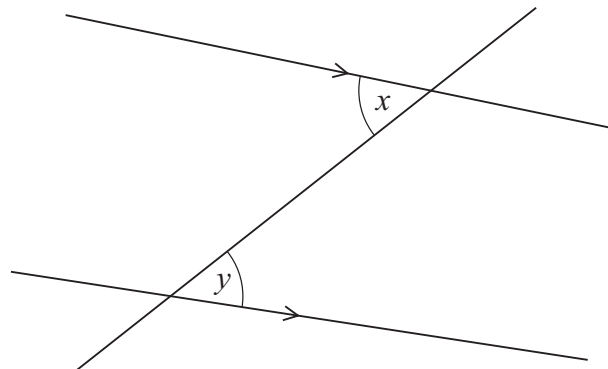
..... [1]

2 The probability of spinning a blue colour on a spinner is 0.4

Find the probability of **not** spinning a blue colour.

..... [1]

3 The diagram shows a straight line crossing a pair of parallel lines.



NOT TO  
SCALE

Angle  $x$  and angle  $y$  are acute angles.

(a) Write down **one possible** pair of values for angle  $x$  and angle  $y$ .

$$x = \text{.....}^\circ$$

$$y = \text{.....}^\circ \quad [1]$$

(b) Draw a ring around the best description of angle  $x$  and angle  $y$ .

corresponding

vertically opposite

alternate

parallel

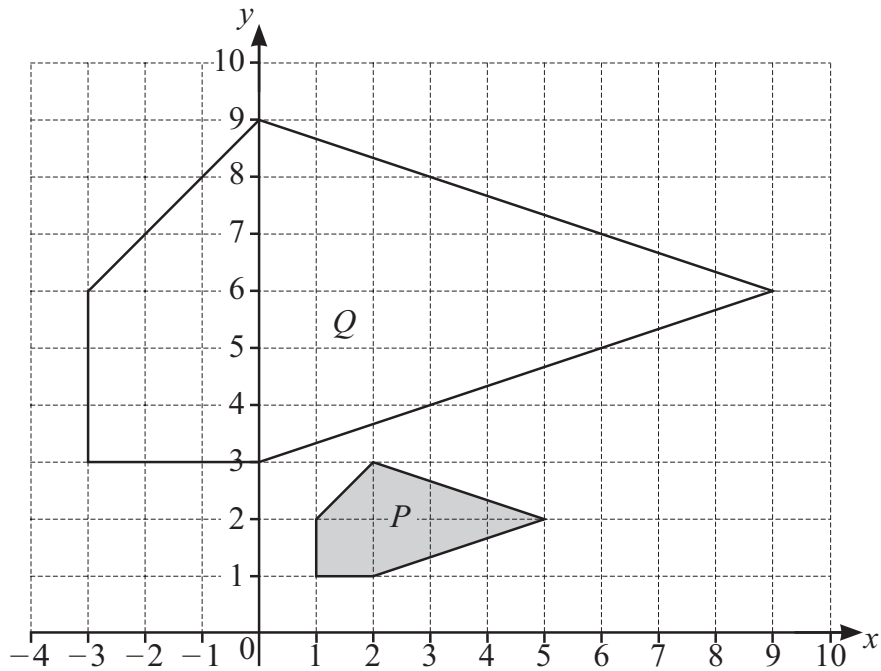
[1]

- 4 Chen starts with a number.  
 He squares his number.  
 His answer is 144

Write down the two possible values of the number Chen starts with.

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

- 5 The diagram shows two pentagons,  $P$  and  $Q$ .



A single transformation maps  $P$  onto  $Q$ .

- (a) Write down the type of transformation.

..... [1]

- (b) Write down the scale factor.

..... [1]

- 6 Carlos, Angelique and Safia are three friends who have some sweets.  
 Carlos has  $n$  sweets.  
 Angelique has half as many sweets as Carlos.  
 Safia has 4 more sweets than Angelique.

Write an expression, in terms of  $n$ , for

- (a) the number of sweets Angelique has,

..... [1]

- (b) the number of sweets Safia has,

..... [1]

- (c) the total number of sweets for all three friends.  
 Give your answer in its simplest form.

..... [2]

- 7 (a) Here is Eva's calculation.

$$5 + 3 \times 2^2 = 32$$

Explain why Eva is **not** correct.

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

- (b) Work out.

$$\sqrt{94 - 3^2 \times 5}$$

....., [2]

**8** Factorise.

(a)  $12x - 40$

..... [1]

(b)  $17y^2 + 34y$

..... [2]

**9** Complete this statement.

$$72.9 \div 0.01 = \text{.....} \div 0.1 \quad [1]$$

**10 (a)**  $A(3, 9)$  and  $B(4, -1)$  are two points.

Find the midpoint of  $AB$ .

(....., ..... ) [1]

(b)  $D$  is the midpoint of  $CE$ .

Complete the coordinates for  $C$  and  $E$ .

$$C = (-5, \text{.....}) \quad D = (3, 10) \quad E = (\text{.....}, 8) \quad [2]$$

11 Write down the value of  $13^0$

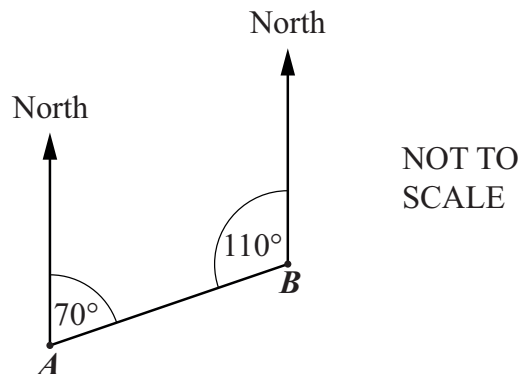
..... [1]

12 Write this ratio in its simplest form.

2.4 m : 45 cm

..... : ..... [2]

13 The diagram shows the positions of two towns, *A* and *B*.



Find the bearing of

(a) *B* from *A*,

.....° [1]

(b) *A* from *B*.

.....° [1]

14 (a) Tick (✓) to show whether each of the statements about the line  $x = 5$  is true or false.

	True	False
The line $x = 5$ is parallel to the $x$ -axis.	<input type="checkbox"/>	<input type="checkbox"/>
The line $x = 5$ passes through the point $(-2, 5)$ .	<input type="checkbox"/>	<input type="checkbox"/>
The line $x = 5$ is perpendicular to the line $y = -3$	<input type="checkbox"/>	<input type="checkbox"/>

[1]

(b) Write down the equations of two **different** lines that are parallel to the line  $y = 4$

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

(c) For the line  $y = 5 - 3x$  write down the gradient and the intercept with the  $y$ -axis.

gradient = .....  
 $y$ -intercept = ..... [1]

15 (a) Draw a ring around **all** of the calculations that are equivalent to  $\frac{9}{16} \div \frac{3}{4}$

$$\frac{16}{9} \times \frac{3}{4} \quad \frac{9}{16} \times \frac{4}{3} \quad \frac{9}{4} \times \frac{1}{3} \quad \frac{16}{9} \times \frac{4}{3} \quad \frac{3}{4} \times \frac{1}{1} \quad \frac{3}{8} \times \frac{2}{1}$$

[2]

(b) Calculate  $3 \times 1\frac{5}{6}$

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

..... [2]

- 16 Yuri records the number of goals scored in one season by each of the players in two football teams.

Here are the results for the 11 players in **Team A**.

24    17    42    31    45    28    36    10    23    17    19

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

1	
2	
3	
4	

<b>Key:</b> .....
-------------------

[3]

- (b) Yuri's results for the players in **Team B** are summarised in the table.

	<b>Goals scored</b>	
	<b>Team A</b>	<b>Team B</b>
<b>Median</b>		32
<b>Range</b>		42

Complete the table for **Team A**.

[2]



(c) Write down **two** comparisons between **Team A** and **Team B**.

Give your comparisons in context.

1 .....  
.....

2 .....  
.....

[2]

17 Six students start to solve  $50 - 2x = 28$  in different ways.

For each student's work, tick (✓) to show if the statements are true or false.

$50 - 2x = 28$	
so $2x = 28 - 50$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

$50 - 2x = 28$	
so $50 = 28 + 2x$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

$50 - 2x = 28$	
so $2x = 28 + 50$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

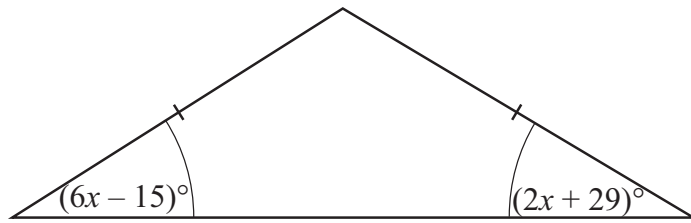
$50 - 2x = 28$	
so $25 - x = 14$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

$50 - 2x = 28$	
so $50 - 28 = 2x$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

$50 - 2x = 28$	
so $-2x = 28 - 50$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

[2]

- 18 The diagram shows an isosceles triangle.



NOT TO  
SCALE

Work out the value of  $x$ .

$$x = \dots\dots\dots [3]$$

- 19 Here are three equations.

$$80 = 2^m \times 5$$

$$72 = 2^n \times 3^2$$

$$80 \times 72 = 2^p \times 3^2 \times 5$$

Work out the values of  $m$ ,  $n$  and  $p$ .

$$m = \dots\dots\dots$$

$$n = \dots\dots\dots$$

$$p = \dots\dots\dots [3]$$

$$20 \frac{\blacktriangle}{2.7} = 0.43$$

Find the value of  $\blacktriangle$

$$\blacktriangle = \dots\dots\dots [2]$$