



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]

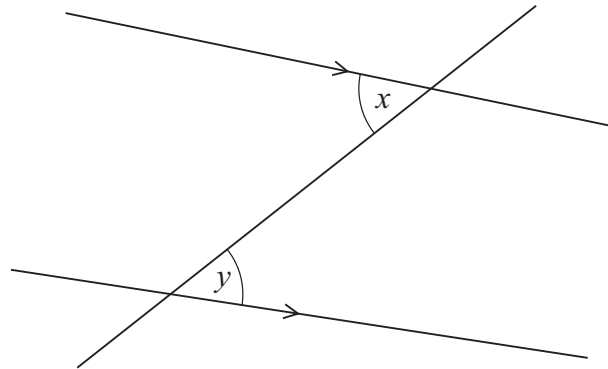
2 The probability of spinning a blue colour on a spinner is 0.4



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

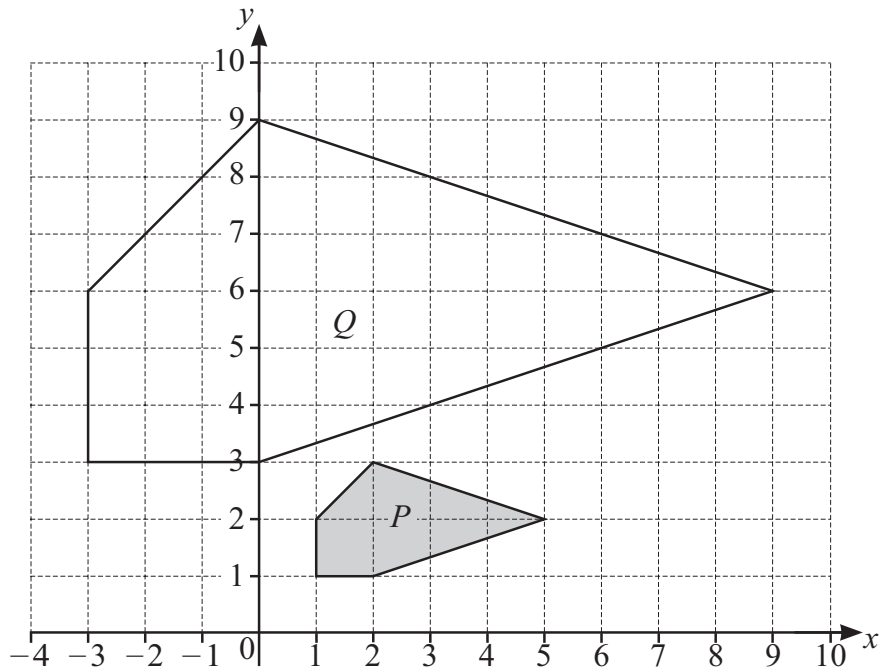
[1]

- 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.



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

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

11 Write down the value of 13^0

7

..... [1]

12 Write this ratio in its simplest form.

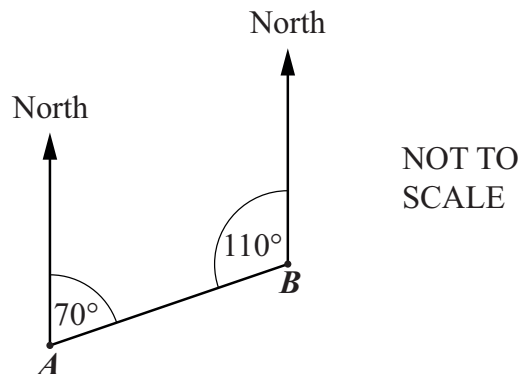
7

2.4 m : 45 cm

..... : [2]

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

7



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	

Key:.....

[3]

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

	Goals scored	
	Team A	Team B
Median		32
Range		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"/>

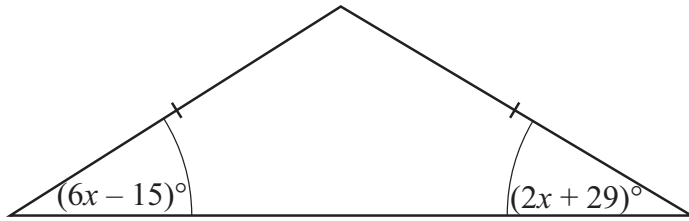
$50 - 2x = 28$	
so $50 - 28 = 2x$	
True	False
<input type="checkbox"/>	<input type="checkbox"/>

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

[2]

18 The diagram shows an isosceles triangle.

K



NOT TO
SCALE

Work out the value of x .

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

19 Here are three equations.

K

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

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

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

Work out the values of m , n and p .

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

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

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

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

K

Find the value of \blacktriangle

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