Cambridge Assessment International Education

Mathematics

Stage 9

Paper 2 **2025**

Cambridge Lower Secondary Progression Test

Name

Class

Date

1 hour

Additional materials: Calculator
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 may 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 Angelique is n years old.

Yuri says,

'To find my age, add 2 to Angelique's age, then square.'

Write down an expression, in terms of n, for Yuri's age.

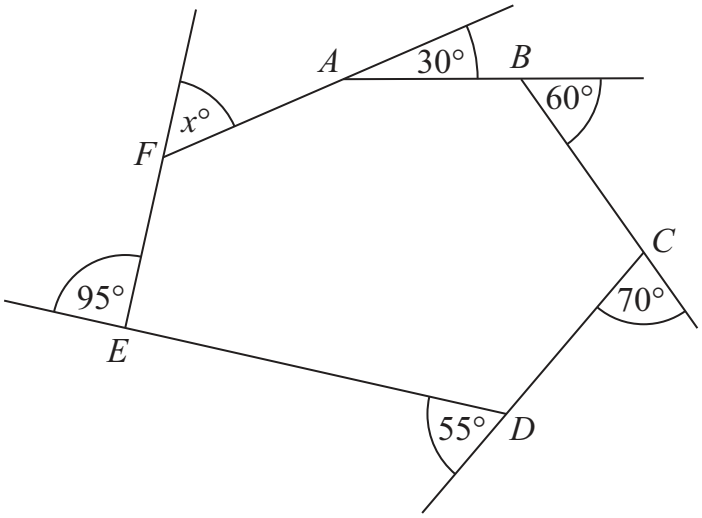
..... [1]

2 It takes 4 people 6 weeks to paint a bridge.

Find the number of weeks it would take 2 people to paint the same bridge.

..... weeks [1]

3 The diagram shows a hexagon $ABCDEF$.
Five of the exterior angles are given on the diagram.



NOT TO SCALE

Find the value of x.

..... [1]

4 Youssef has this question for homework.

Factorise fully $5x^2 - 15x$

His answer is $5(x^2 - 3x)$

Explain why Youssef's answer is **not** correct.

.....

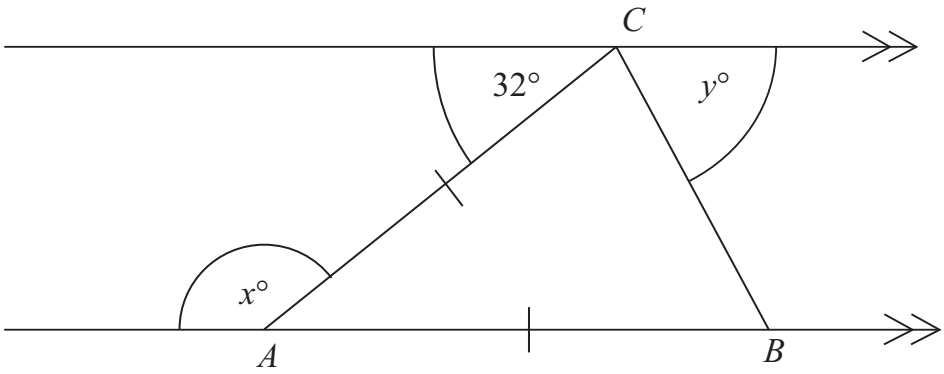
..... [1]

5 In 2022, 1 litre of fuel cost \$1.50
In 2023, the price increased by 20%.
In 2024, the price decreased by 10%.

Calculate the cost of 1 litre of fuel at the end of 2024

..... [2]

6 The diagram shows a pair of parallel lines and an isosceles triangle where $AB = AC$.



NOT TO SCALE

Find the value of x and the value of y.

$x =$ .....

$y =$ .....

[3]

7 Here are some equations of straight lines.

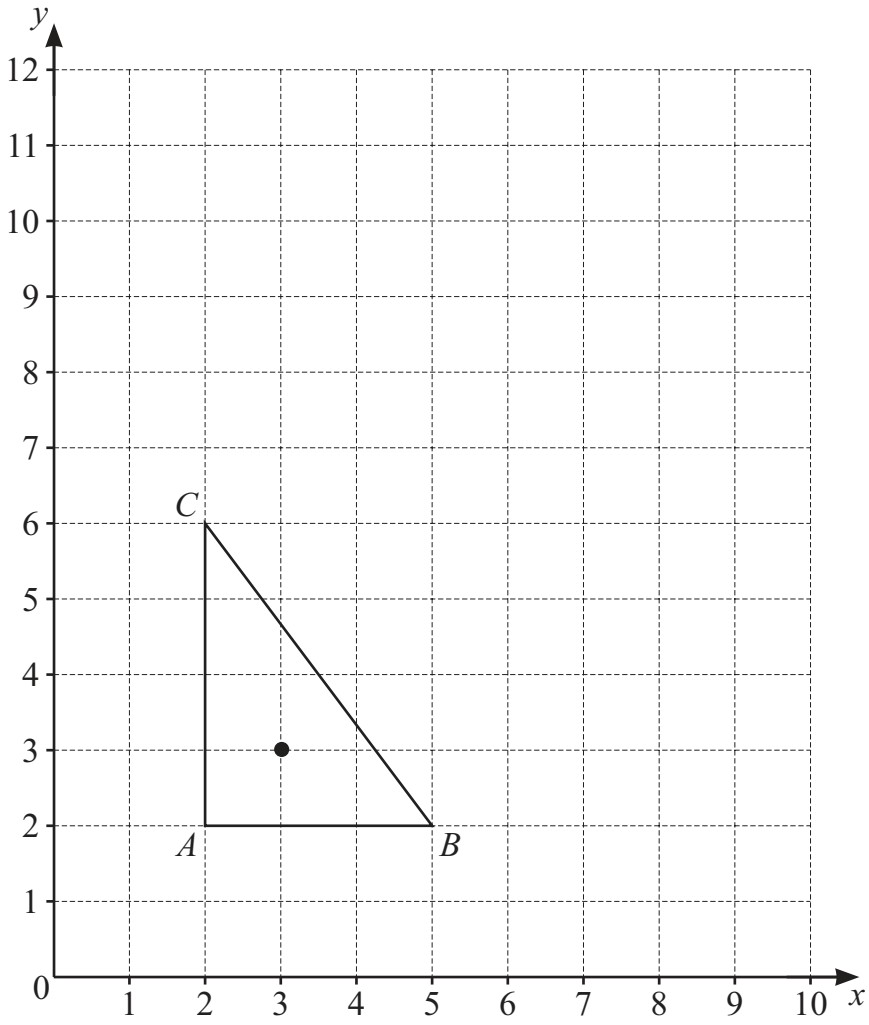
$$y = 2x + 3$$
$$y = 5 - 3x$$
$$y = -x - 2$$

Write each equation in the correct part of the table.
One has been done for you.

	Gradient is positive	**Gradient is negative**
***y*-intercept is positive**	$y = 2x + 3$	
***y*-intercept is negative**		

[1]

8 The triangle ABC is shown on the grid.

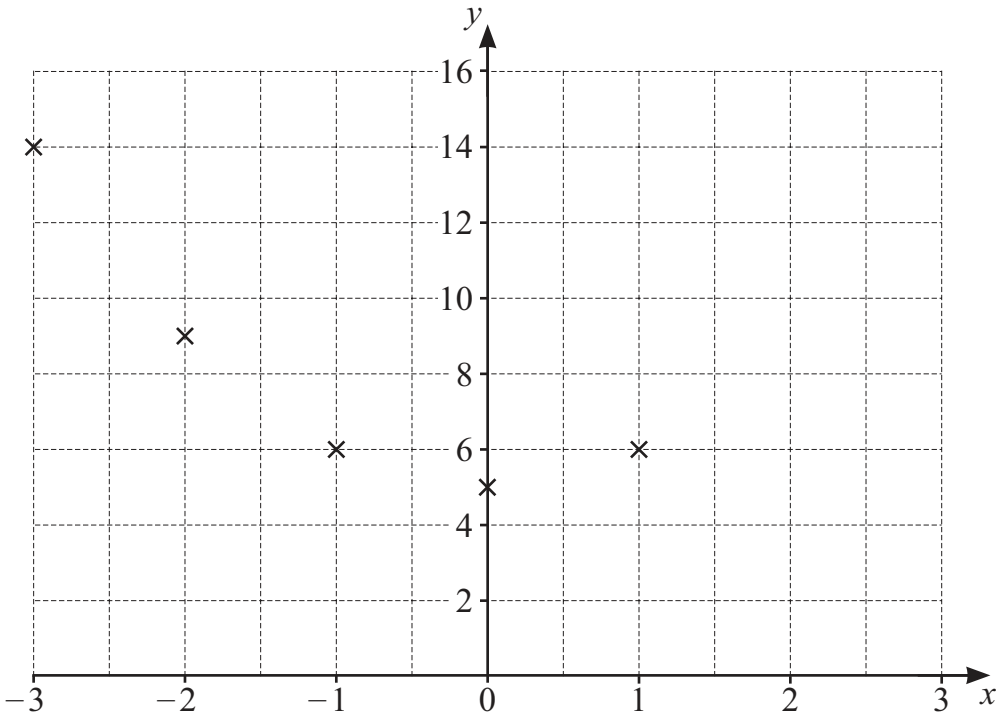


Draw the image of triangle ABC after an enlargement, scale factor of 2, centre of enlargement (3, 3). [2]

9 Complete the graph of $y = x^2 + 5$ for values of x between –3 and 3

You may use the table to help you.

x	–3	–2	–1	0	1	2	3
y	14	9	6	5	6		



[2]

10 The number of people in a stadium is 24300 correct to the nearest 100

Find the **smallest** possible number of people in the stadium.

..... [1]

11 The children in a class measure the lengths, in cm, of their feet.
The table gives information about their results.

Length, l (cm)	**Frequency, f**	**Midpoint**	**Midpoint × f**
$10 \leq l < 14$	3	12	36
$14 \leq l < 18$	21	16	336
$18 \leq l < 22$	6	20	120

Calculate an estimate of the mean length of these feet.

..... cm [2]

12 Solve the inequality.

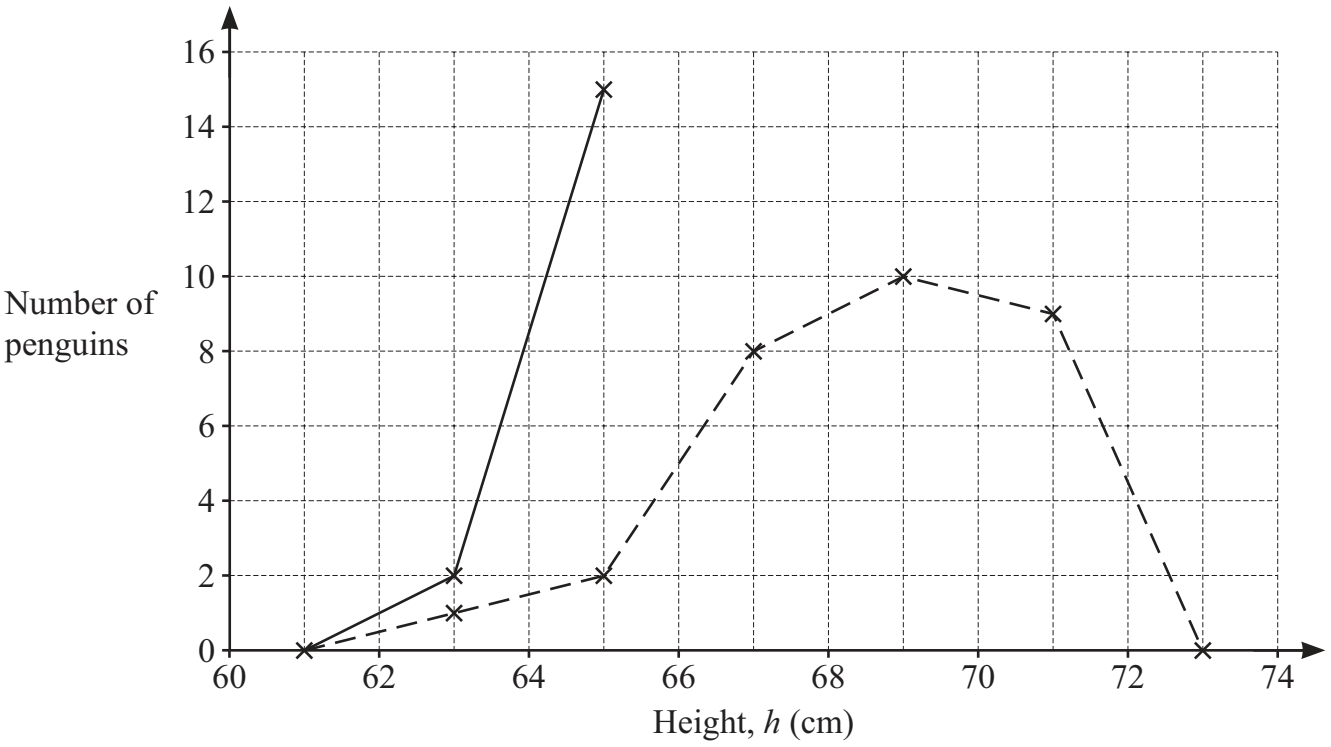
$$-6 < 2x - 4 \leq 3$$

..... [2]

13 The table shows the heights, in cm, of a sample of 30 Chinstrap penguins and a sample of 30 Humboldt penguins.

Height, h (cm)	Chinstrap penguin	Humboldt penguin
$60 \leq h < 62$	0	0
$62 \leq h < 64$	1	2
$64 \leq h < 66$	2	15
$66 \leq h < 68$	8	7
$68 \leq h < 70$	10	5
$70 \leq h < 72$	9	1
$72 \leq h < 74$	0	0

(a) The frequency polygon for the Chinstrap penguins is drawn on the grid.



Complete the frequency polygon for the Humboldt penguins on the grid. [2]

(b) Tick (✓) to show if each statement about these samples of 30 penguins is true, false or there is not enough information to know.

Statements	True	False	Not enough information to know
The Chinstrap penguins are taller, on average, than the Humboldt penguins.			
The shortest of these penguins is a Chinstrap penguin.			
None of the penguins have a height greater than 72 cm.			

[2]

14 Solve.

$$\frac{10}{x-1} = 5$$

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

15 Here is an inequality.

$$4 < \sqrt{x} < 6$$

Given that x is an integer, write down the **smallest** possible value for x.

$x =$ ..... [1]

16 Expand and simplify.

$$(x + 2)(x - 4)$$

..... [2]

17 **(a)** A sequence has the term-to-term rule subtract 3 then square.

The first three terms of the sequence are 5, 4, 1

Write the fourth and fifth terms of the sequence in the boxes.

5, 4, 1, ☐ , ☐

[2]

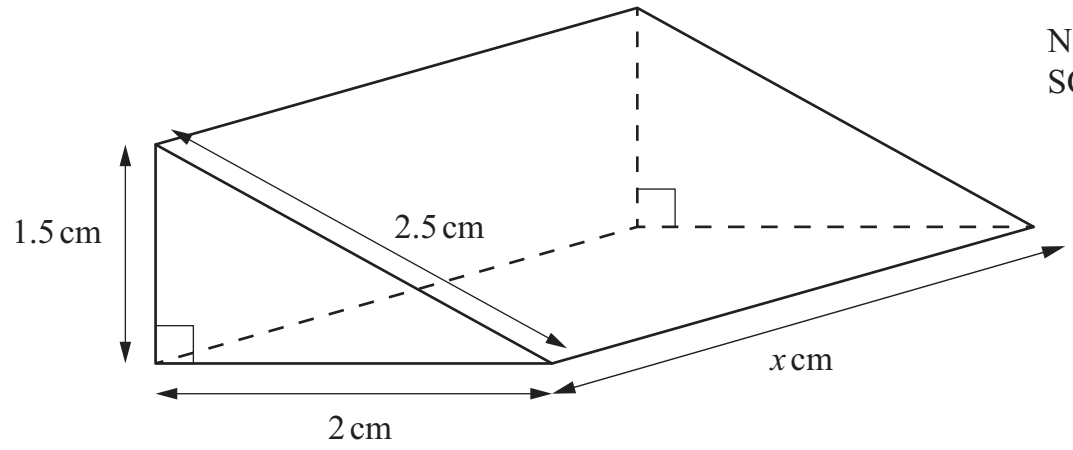
(b) Here are the first four terms of a different sequence.

2, 8, 128, 32 768

Complete the term-to-term rule for this sequence.

The term-to-term rule is square then ..... . [1]

18 The diagram shows a triangular prism.



The total surface area of the triangular prism is 57 cm^2.

Find the value of x.

x = ... [3]

19 The fraction $\frac{5}{7}$ is equivalent to this recurring decimal.

0.714285714285…

Find the 599th digit after the decimal point in this recurring decimal.

..... [1]

20 A circle has an area of $48.34\,\text{cm}^2$.

Calculate the radius of the circle.
Give your answer correct to 3 significant figures.

..... cm [3]

21 Three children share some sweets in the ratio 3 : 5 : 9
One child gets 12 more sweets than one of the other children.

Find the three possible **totals** for the number of sweets that the three children share.

..... or ..... or ..... [3]

22 Point A has coordinates (3, 4).
Point B has coordinates (5, 5).
Point C has coordinates (9, y).
A, B and C lie on a straight line.

Find the value of y.

$y =$ ..... [1]

23 Twelve children in class Y estimate how long one minute lasts for.
They each shut their eyes and put their hand in the air when they think one minute has passed.

The stem-and-leaf diagram shows the times, in seconds, for eleven of the children.

4					
5	6	9	9		
6	1	4	5	7	8
7	0	2	6		
8					

Key: 5 \| 6 represents 56 seconds

For all **twelve** children in class Y

- the median time is 64.5 seconds
- the range of the times is 33 seconds.

(a) Complete the stem-and-leaf diagram with the missing time.

[2]

(b) Twelve children in class Z are also asked to estimate how long one minute lasts for.

For the twelve children in class Z

- the median time is 61.5 seconds
- the range of the times is 46 seconds.

Eva says, 'The children in class Z are better at estimating how long one minute lasts for than the children in class Y'.

Use information about the medians and ranges for class Y and class Z to complete the sentences.

Eva may be correct because .....

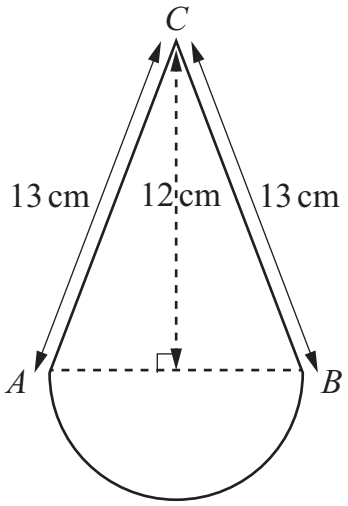
.....

Eva may **not** be correct because .....

.....

[2]

24 The diagram shows a shape formed by an isosceles triangle ABC joined to a semicircle with diameter AB.



NOT TO SCALE

Find the perimeter of the shape.

..... cm [4]