Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

1107165751

MATHEMATICS **0862/02**

Paper 2 **April 2024**

1 hour

You must answer on the question paper.

You will need: Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- 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 [ ].

This document has **16** pages. Any blank pages are indicated.

1 It will take 7 workers 6 days to pick some mangoes.

Calculate how many workers are needed to pick these mangoes in 3 days.

..... [1]

2 Calculate.

$\sqrt{54} \div \sqrt{6}$

..... [1]

3 The mass of a baby is 4 kg.
Each month the mass of the baby increases by 15% of its mass from the previous month.

Find the mass of the baby after 2 months.

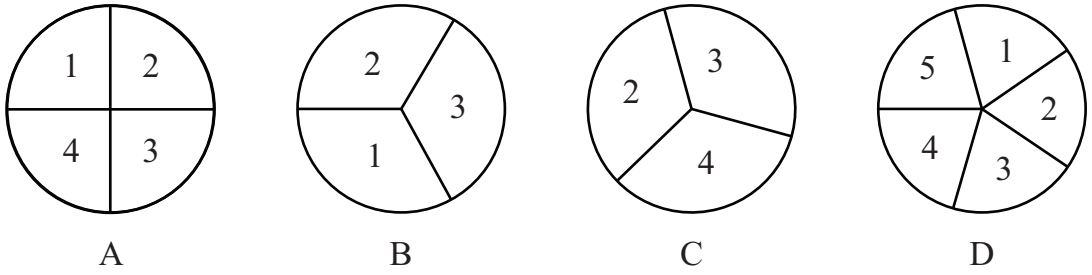
..... kg [2]

4 In a game Oliver can either lose or draw or win.
The probability Oliver loses the game is 50%.
The probability Oliver draws the game is 20%.

Work out the probability Oliver wins the game.

..... % [1]

5 Anastasia has four fair spinners, A, B, C and D.

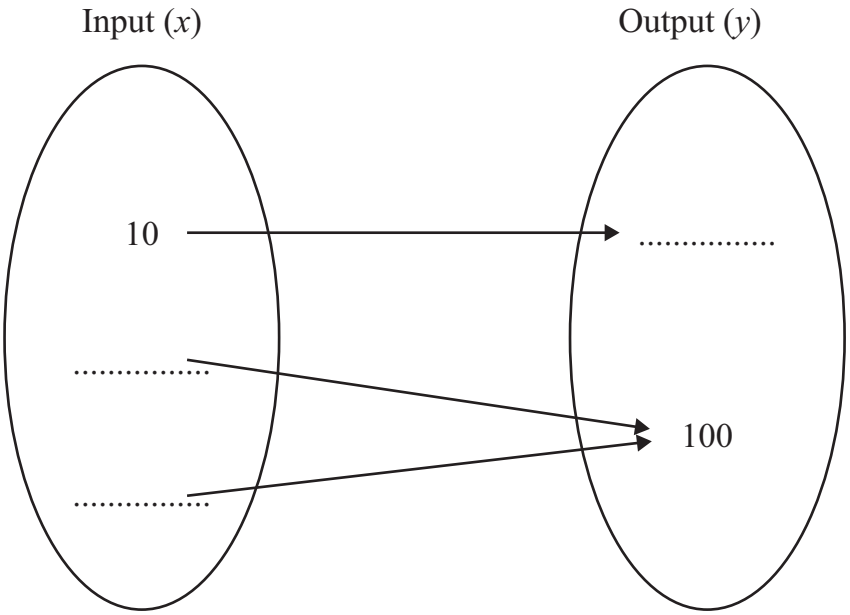


She spins one of the spinners 1200 times and gets an even number 486 times.

Write down the letter of the spinner she is most likely to have used.

..... [1]

6 Here is a mapping diagram for the function $y = 4x^2$



Complete the mapping diagram with three **different** values. [3]

7 Here is a calculation.

$$1.5 \times 1.5 \times 28 = \frac{a}{2} \times \frac{a}{2} \times 28 = a \times a \times b$$

Find the value of a and the value of b.

$a =$ .....

$b =$ .....

[2]

8 Carlos sells previously owned clothes.
He will ask his customers one of these questions, A or B.

A On a scale of 1 to 10, what number would you choose to represent the condition of the clothes?

1 2 3 4 5 6 7 8 9 10

Very poor Excellent

B Which word(s) would you choose to represent the condition of the clothes?

Very poor Average Excellent

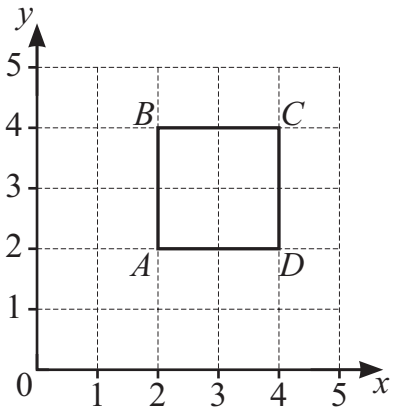
Carlos wants to work out a **mean** value to represent the condition of the clothes.

Tick (✓) to show which question Carlos should ask his customers and the reason why.

Question A because it asks for quantitative data	☐
Question A because it asks for qualitative data	☐
Question B because it asks for quantitative data	☐
Question B because it asks for qualitative data	☐

[1]

9 Yuri enlarges square *ABCD* by a scale factor of 2



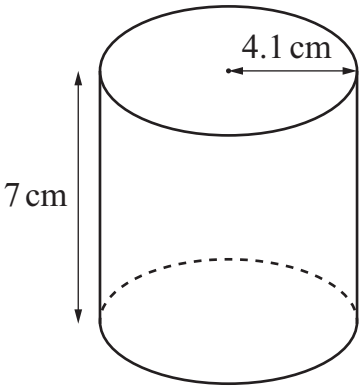
Point *A* does **not** move when the square is enlarged.

Draw a ring around the coordinates of the centre of enlargement.

(0, 0) (2, 2) (2, 4) (4, 2) (4, 4)

[1]

10 The diagram shows a solid metal cylinder with a radius of 4.1 cm and a height of 7 cm.



NOT TO SCALE

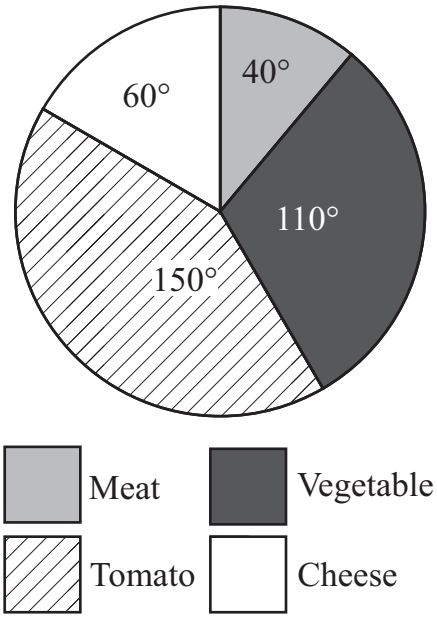
The cylinder is melted and the metal is made into cubes.
The side length of each cube is 2 cm.

Calculate the number of **whole** cubes that are made.

.....

[3]

11 The pie chart shows information about the different types of pizzas sold in a restaurant.



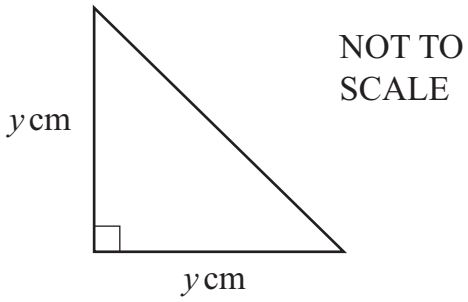
A total of 324 pizzas are sold.
Mia says, '20 more cheese pizzas are sold than meat pizzas.'

Tick (✓) to show if Mia is correct or not correct.
You must show your working.

Correct ☐ Not correct ☐

[2]

12 The diagram shows a right-angled triangle.



Find an expression, in terms of y, for the area of the triangle.

..... cm^2 [1]

13 A polygon has 7 sides.
The sizes of the 6 largest interior angles of the polygon add up to 855°.

Calculate the size of the smallest interior angle.

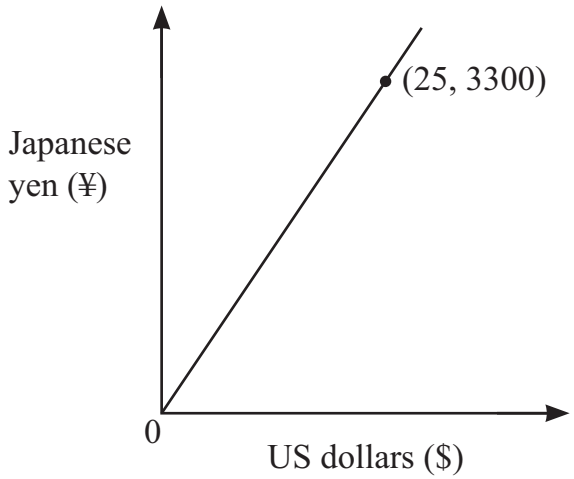
..... ° [2]

14 Solve.

$$\frac{56}{y+1} = 8$$

$y =$ ..... [2]

15 The graph shows the exchange rate between US dollars ($) and Japanese yen (¥).



Angelique changes $40 into Japanese yen.

Calculate how many Japanese yen Angelique receives.

¥ ..... [2]

16 Triangle *ABC* is translated by the vector $\begin{pmatrix} 2 \\ 1 \end{pmatrix}$ to make triangle *DEF*.

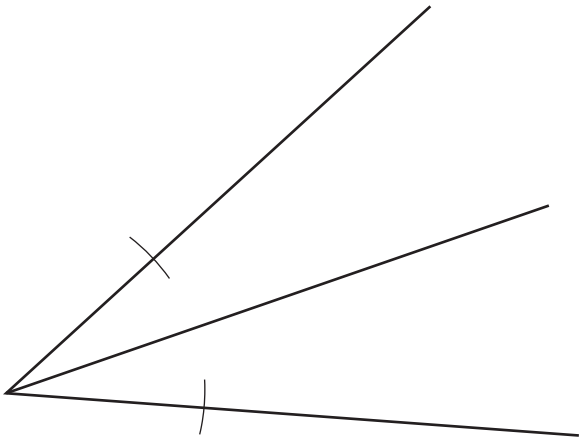
Then triangle *DEF* is translated by the vector $\begin{pmatrix} -3 \\ 7 \end{pmatrix}$ to make triangle *GHI*.

Describe fully the **single** transformation that maps triangle *ABC* onto triangle *GHI*.

.....

..... [2]

17 Rajiv bisects an angle.
Here is his construction.



There are arcs missing from his construction.

Construct the missing arcs accurately on the diagram. [1]

18 The ratio of the sizes of the angles in a triangle is 5 : 8 : 3

Tick (✓) to show if the triangle is right-angled or not right-angled.
You must show your working.

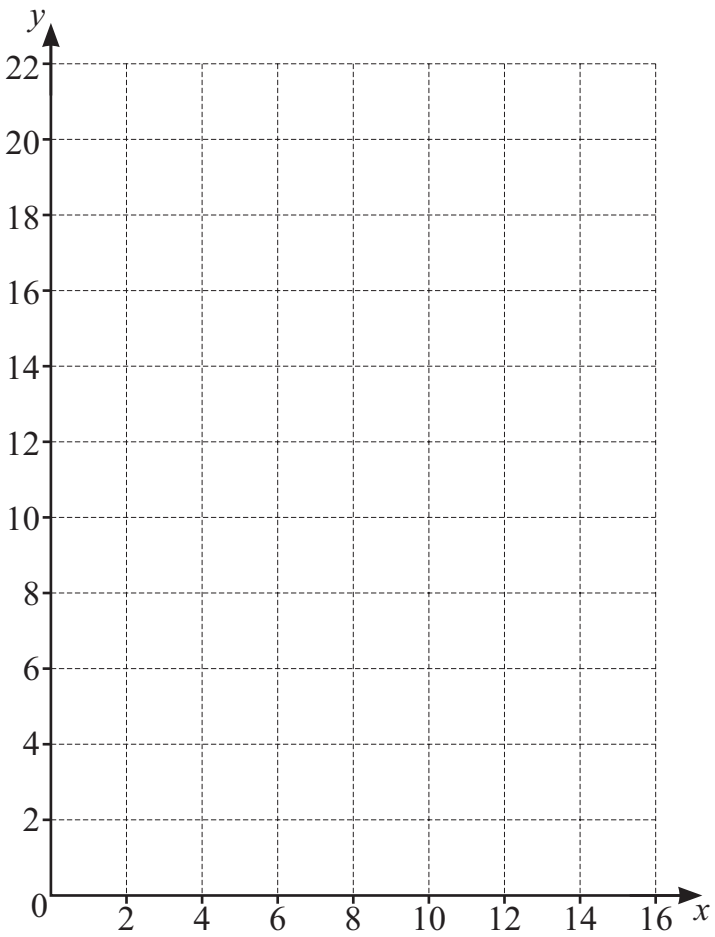
Right-angled ☐ Not right-angled ☐

[2]

19 Complete the table of values for $3y + 5x = 60$

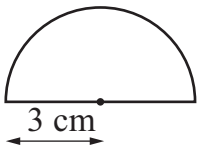
x	0	6	
y			0

On the grid, draw the graph of $3y + 5x = 60$



[3]

20 The diagram shows a semicircle with a radius of 3 cm.



NOT TO SCALE

Tick (✓) to show the area of the semicircle correct to the nearest cm^2.

14 cm^2		19 cm^2		28 cm^2		57 cm^2	

[1]

21 Here is a table of values for points that all lie on the same straight line.

x	5	6	7	11	14
y	27	32	37	57	

Complete the table.

[1]

22 Solve the inequality.

$2x + 20 \leq 16$

..... [2]

23 Expand and simplify.

$x(x + 4) + (x - 3)(x + 5)$

..... [3]

24 Temperature is measured in °C and in °F.

The formula $f = \frac{9c}{5} + 32$ is used to convert c °C to f °F.

The approximate formula $f = 2c + 30$ is also used to convert c °C to f °F.

Mike says,

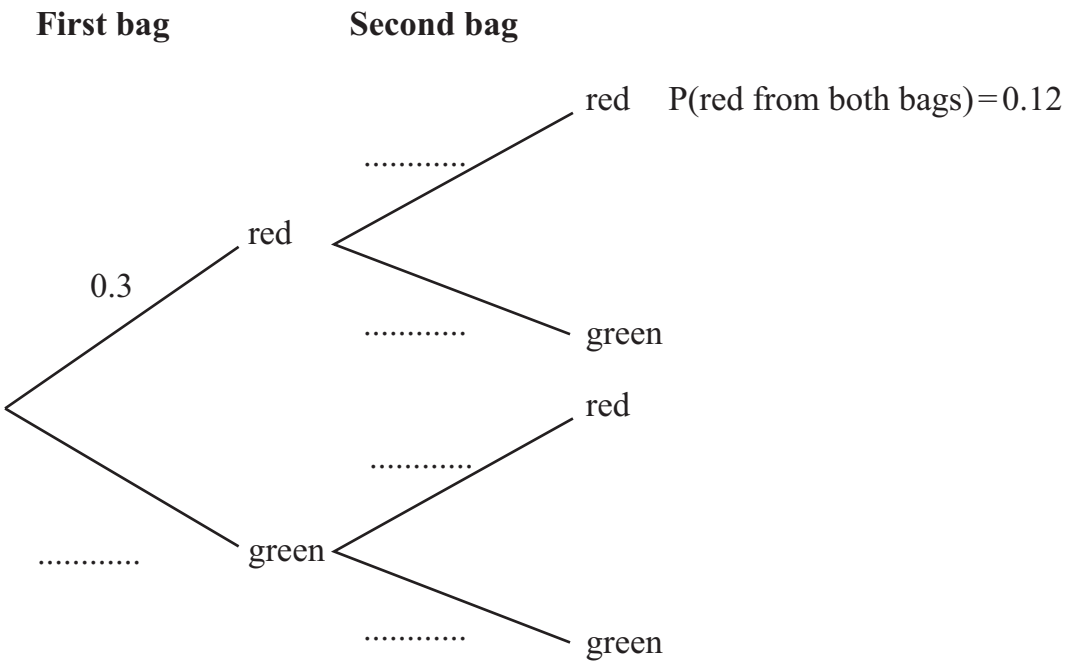
'There is a value of c where these two formulae give an equal value of f.'

Find the value of c to show that Mike is correct.

c = ... [3]

25 Safia has two bags of sweets.
Each bag contains red sweets and green sweets only.
She takes one sweet at random from each bag.

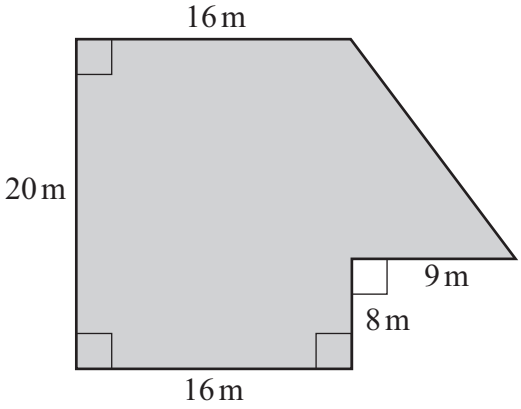
The probability that she takes a red sweet from the first bag is 0.3
The probability that she takes a red sweet from both bags is 0.12



Complete the **five** missing probabilities on the tree diagram.

[3]

26 The diagram shows a garden in the shape of a hexagon.



NOT TO SCALE

Eva builds a fence along all 6 sides of the garden.
The fence costs $23 per metre.

Calculate the total cost of the fence.

$ ..... [4]

