

Cambridge Assessment International Education Lower Secondary Checkpoint Mathematics Past Papers

**0862 – Question Paper
2023 - Now**

Cambridge Lower Secondary Checkpoint

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MATHEMATICS

Paper 1

0862/01

April 2023

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.
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- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- 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 [].

This document has **16** pages.

1 A regular polygon has exactly 8 lines of symmetry

Tick (✓) to show if these facts about the polygon are true, false or if you cannot tell.

	True	False	Cannot tell
The polygon has 16 sides.	☐	☐	☐
The polygon has rotational symmetry of order 8	☐	☐	☐

[1]

2 Carlos rolls a fair six-sided dice 60 times.

Calculate how many times Carlos should expect to roll a 3

..... [1]

3 Write the letter for each calculation in the correct column of the table.
One has been done for you.

A 7×6	B $7^5 \times 7$	C $7^6 \div 7^0$	D $7^2 \times 7^3$
--------------------------	----------------------------	----------------------------	------------------------------

Equal to 7^6	Not equal to 7^6
	A

[1]

- 4 Expand and simplify.

$$(c + 4)(c + 10)$$

..... [2]

- 5 Draw a line to match each calculation to its answer.
One has been done for you.

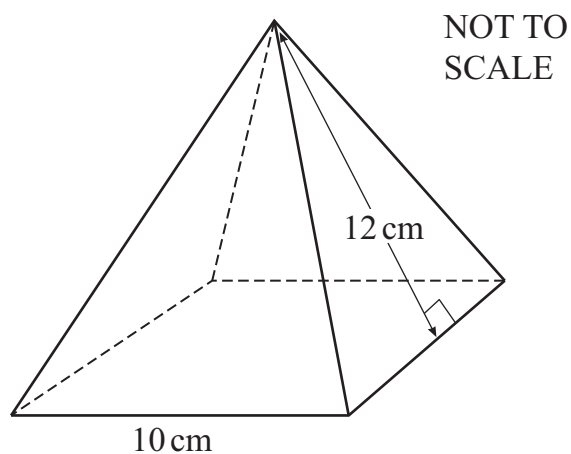
5×10^{-1}	0.005
0.05×10^4	0.5
$5 \div 10^{-3}$	500
$0.5 \div 10^2$	5000

[1]

- 6 Work out the value of $(10 - 2x)^4$ when $x = 4$

..... [2]

- 7 A pyramid has
- a square base with a side length of 10 cm
 - four congruent triangular faces each with a height of 12 cm.

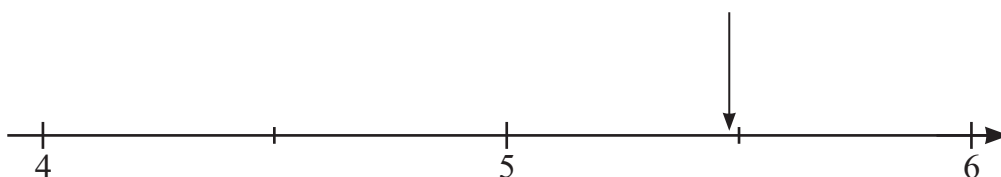


Calculate the surface area of the pyramid.



..... cm² [2]

- 8 The arrow points to a number.



Draw a ring around the number the arrow points to.

$\sqrt{11}$

$\sqrt{22}$

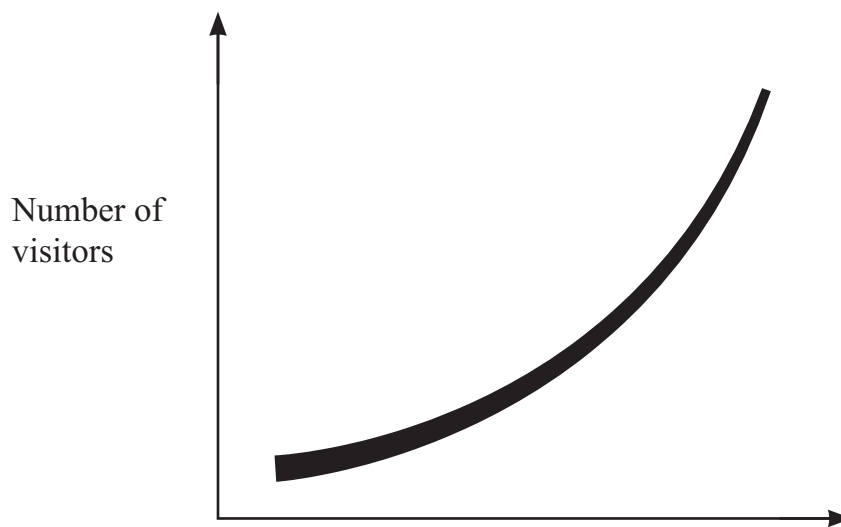
$\sqrt{30}$

$\sqrt{35}$

[1]

- 9 Ahmed draws this graph to show how the number of visitors to his town has increased.

Big increase in the number of visitors to the town



Give **one** reason why the graph could be misleading.

..... [1]

- 10 $\frac{1}{n}$ is equivalent to a recurring decimal.

n is a whole number.

Safia says, ' n must be greater than 5'

Write a number to complete this sentence.

Safia is **not** correct because the value of n could be [1]

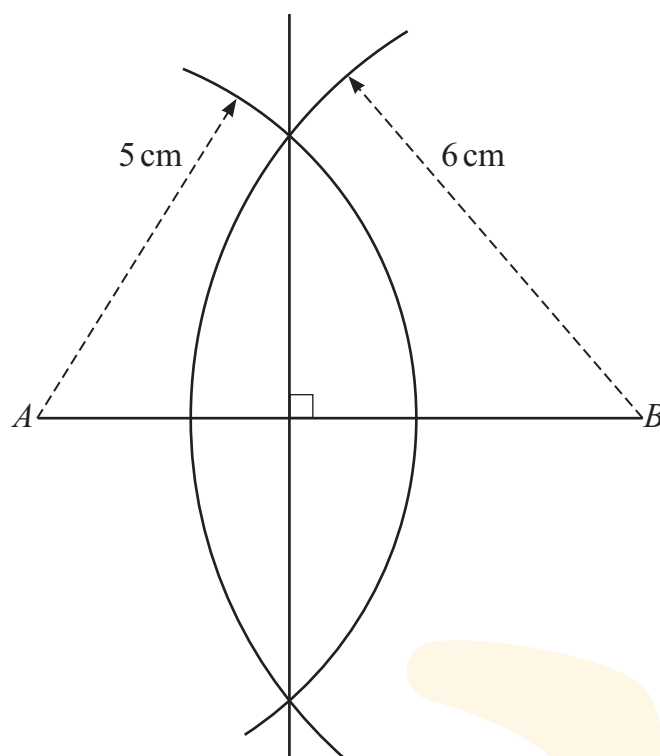
- 11 (a) Write 70 000 in standard form.

..... [1]

- (b) Write 7.5×10^{-3} as an ordinary number.

..... [1]

12 Here is Eva's method for drawing the perpendicular bisector of line AB .



She draws an arc radius 5 cm centre A .

She draws an arc radius 6 cm centre B .

She draws a line to connect the points where her arcs intersect.

Explain why Eva's method is **not** correct.

.....

..... [1]

13 Here is a formula.

$$y = \sqrt{w-2}$$

Draw a ring around the correct rearrangement of the formula.

$$w = \sqrt{y+2}$$

$$w = \sqrt{y} + 2$$

$$w = (y+2)^2$$

$$w = y^2 + 2$$

[1]

14 (a) Write down the value of $\frac{7}{3} \times 5 \times \frac{3}{7}$

..... [1]

(b) Calculate $\frac{9}{10} \div 2\frac{2}{5}$

Give your answer as a fraction in its simplest form.



..... [3]

15 The internal storages of three games consoles are

500 000 MB

32 GB

1 TB

Write these values in order of size, starting with the smallest.

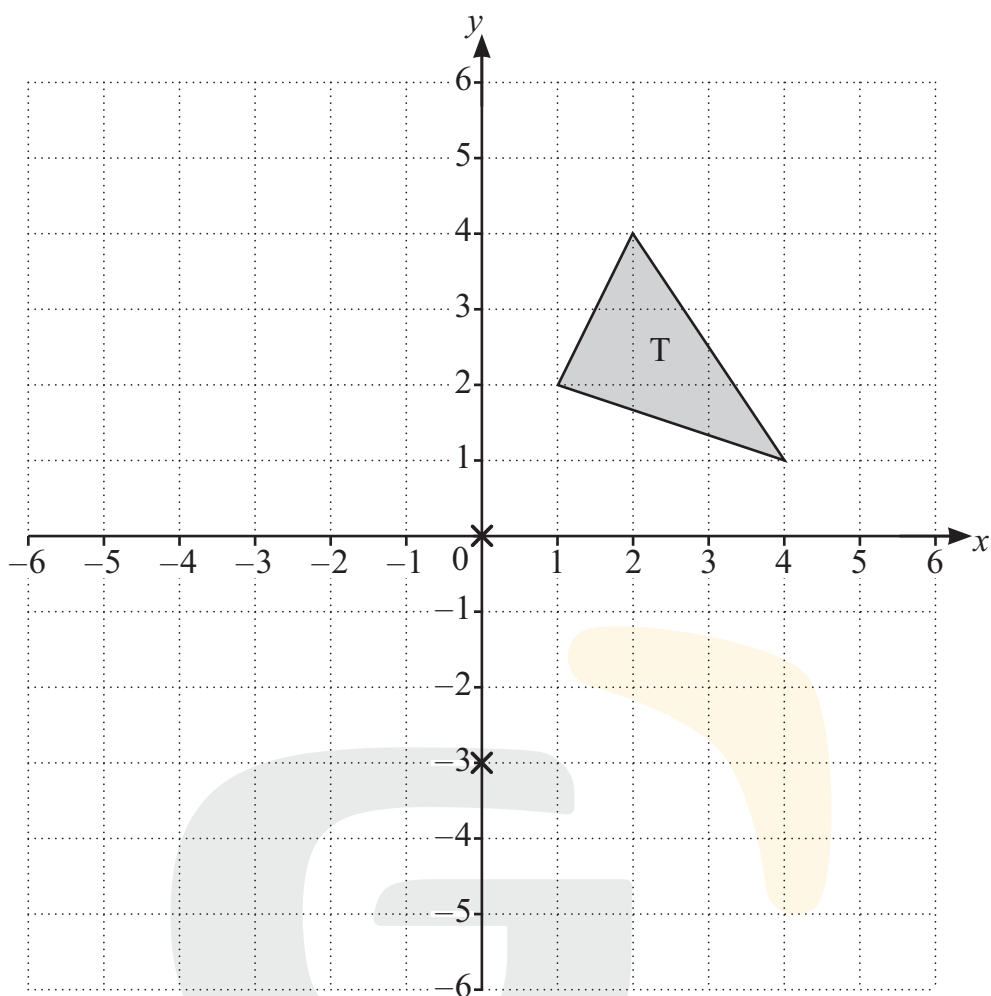
.....
smallest

.....

.....
largest

[1]

16 The diagram shows a triangle T drawn on a grid.



- (a) Triangle T is rotated by 180° about centre $(0, 0)$.
The new triangle is then rotated by 180° about centre $(0, -3)$ to give triangle U.

Draw the position of triangle U on the grid.

[2]

- (b) Draw a ring around the type of transformation that maps triangle T onto triangle U.

translation

reflection

rotation

enlargement

[1]

17 The table shows information about the masses of 70 boxes.

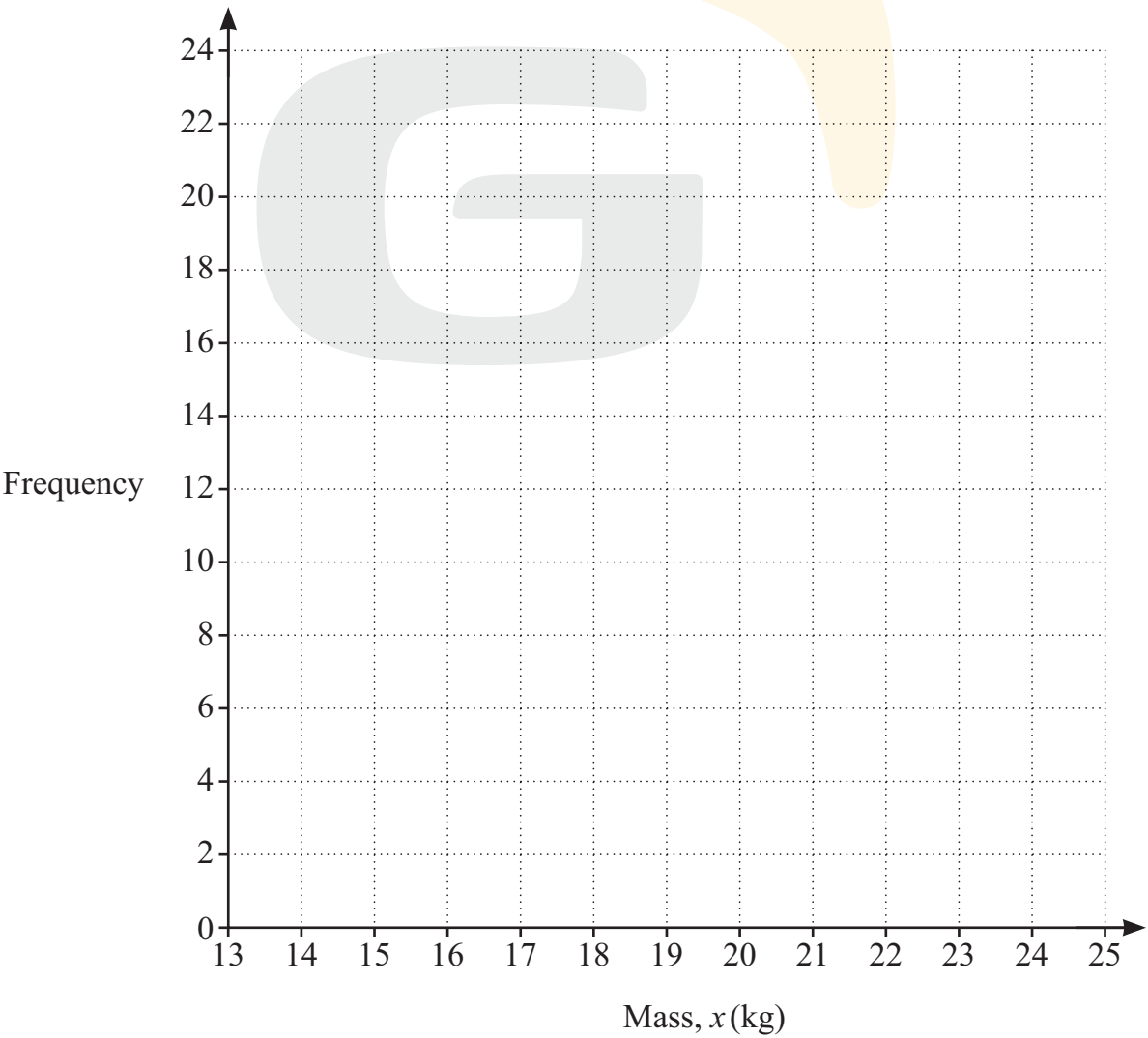
Mass, x (kg)	Frequency
$14 \leq x < 16$	10
$16 \leq x < 18$	7
$18 \leq x < 20$	13
$20 \leq x < 22$	20
$22 \leq x < 24$	20

(a) Draw a ring around the interval that contains the median.

$14 \leq x < 16$ $16 \leq x < 18$ $18 \leq x < 20$ $20 \leq x < 22$ $22 \leq x < 24$

[1]

(b) Draw a frequency polygon to show the information in the table.



[2]

18 (a) The n th term of a sequence is $n^2 + 5$

Find the 7th term of the sequence.

..... [1]

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

0, 3, 8, 15, 24

Find an expression for the n th term of this sequence.

..... [1]

19 Find the coordinates of two points on the line $y = 5 - 3x$ which have

a negative x -coordinate

and

a y -coordinate which is a multiple of 4

(..... ,)

(..... ,)

[2]

20 Chen records the length, in millimetres, of 10 shells.

34	46	37	55	38
52	68	40	31	47

He draws this stem-and-leaf diagram to show the data.

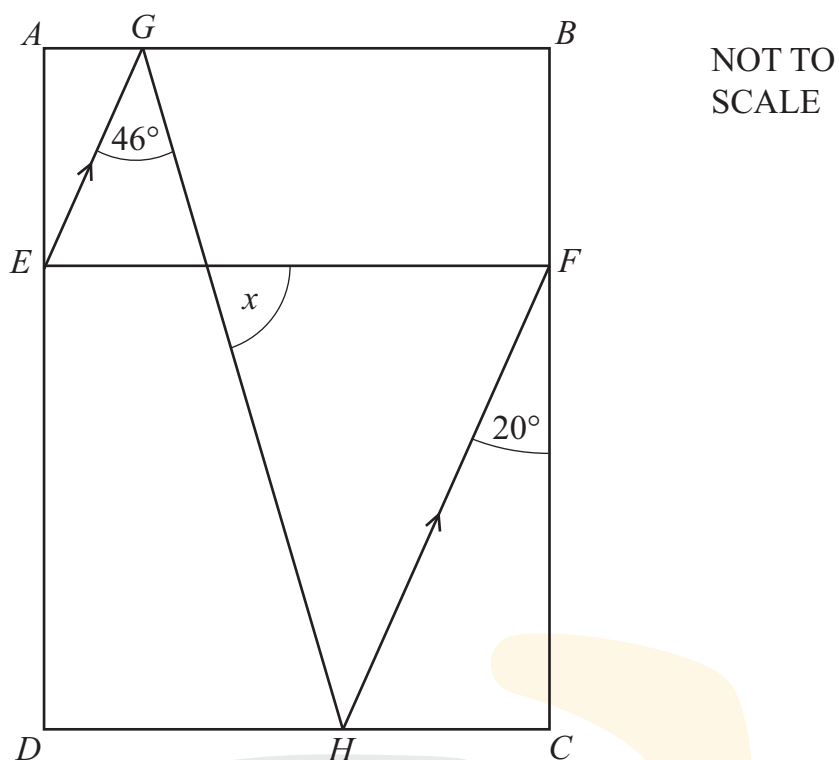
6	8				
4	0	6	7		
3	1	4	7	8	
5	2	5			

Chen’s stem-and-leaf diagram contains some errors.

Draw a correct stem-and-leaf diagram to show Chen’s data.

[2]

21 The diagram shows a rectangle $ABCD$.



EF is parallel to AB .

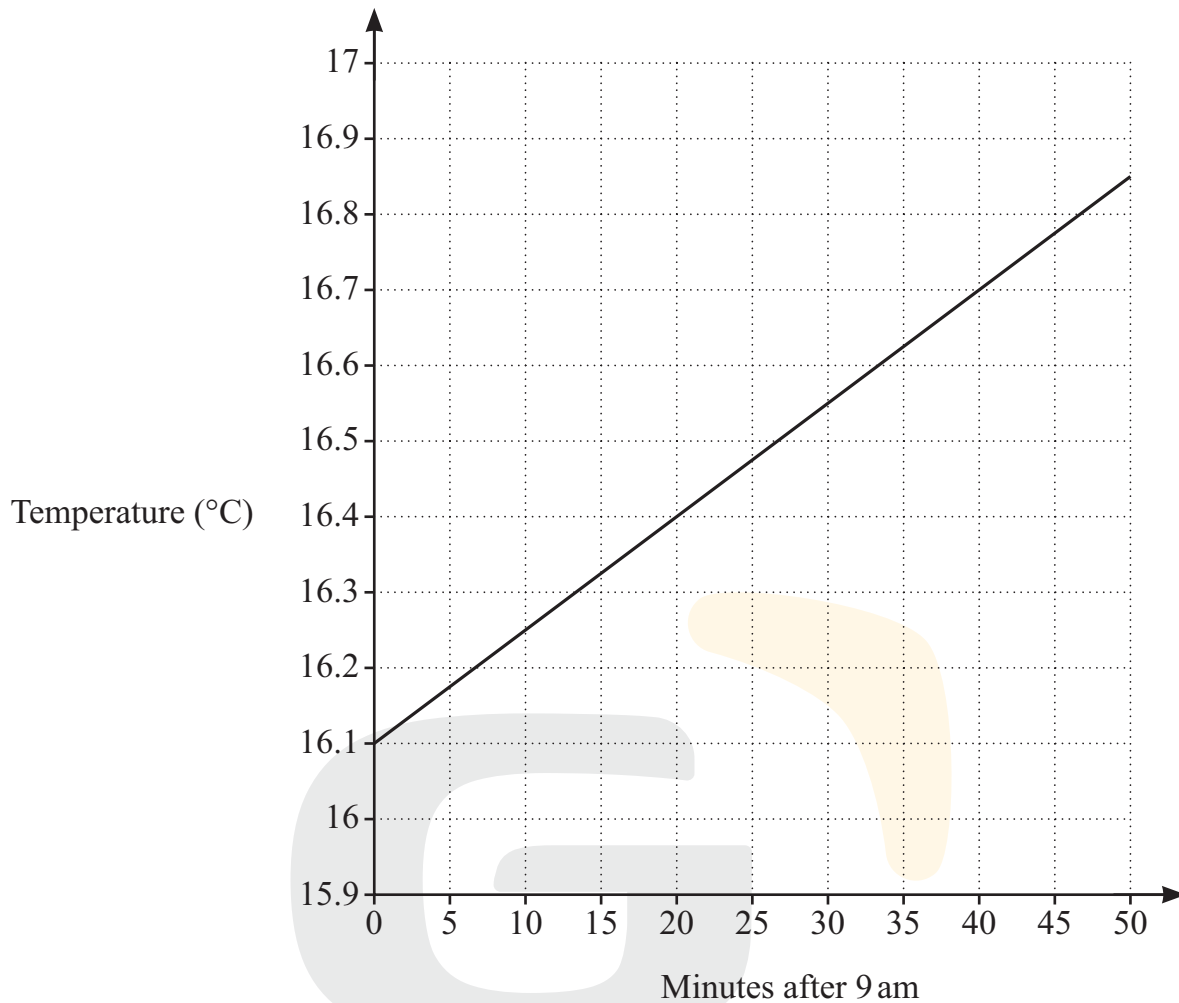
EG is parallel to HF .

Calculate the size of the angle marked x .

$x = \dots\dots\dots^\circ$ [2]

22 Lily heats the water in her swimming pool.

The graph shows the temperature, in $^{\circ}\text{C}$, of the water for the first 50 minutes after 9 am.



The temperature of the water continues to increase at this constant rate.

Find the temperature of the water at 11 am.

..... $^{\circ}\text{C}$ [2]

23 Oliver and Angelique each have a jar that contains only green counters and red counters.

Oliver's jar

Total number of counters = 42

green : red = 3 : 4

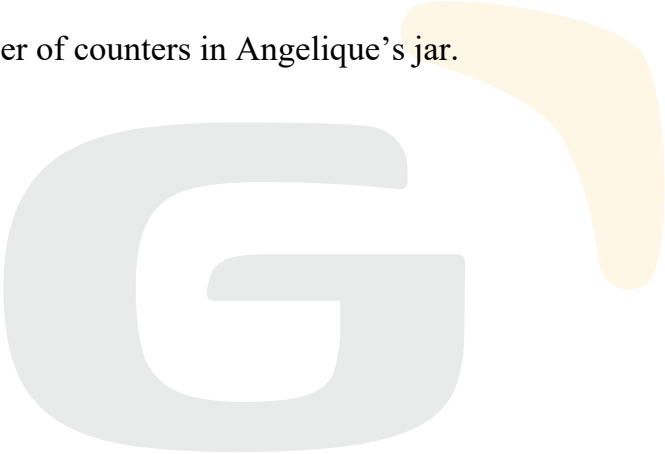
Angelique's jar

Total number of counters = ?

green : red = 5 : 2

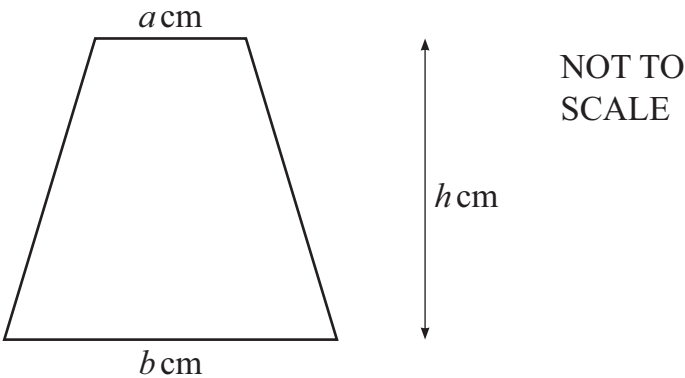
Angelique has the same number of **red** counters as Oliver.

Find the total number of counters in Angelique's jar.



..... [3]

24 The area of a trapezium is 24.5 cm^2 .



a , b and h are integers greater than 1

$a < b$.

Find a set of possible values for a , b and h .

$a =$
 $b =$
 $h =$
[2]

25 Solve.

$$\frac{12}{5-2x} = -3$$

$x =$ [3]

- 26 A bag contains a large number of coloured balls.
Each ball is red or green or blue or yellow.
A ball is picked at random from the bag.
The table shows some of the probabilities.

Colour of ball	Red	Green	Blue	Yellow
Probability	0.3	0.1	x	$1.5x$

Calculate the probability that the ball picked is blue or green.



..... [4]

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MATHEMATICS

Paper 2

0862/02

April 2023

1 hour

You must answer on the question paper.

You will need: Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS

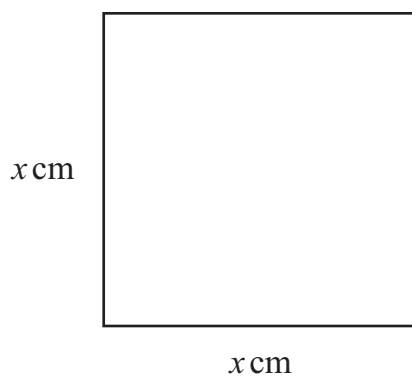
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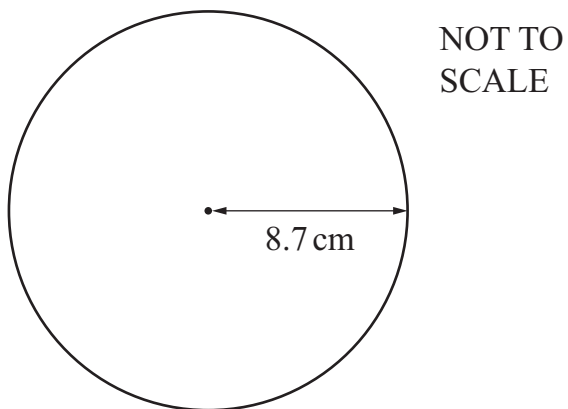
- 1 A square has a side length of x cm.



Find an expression for the area of the square.
Give your answer in its simplest form.

..... cm^2 [1]

- 2 A circle has a radius of 8.7 cm.



Find the area of the circle.

..... cm^2 [2]

- 3 Naomi and Samira share some apples.
Naomi receives less than half of the apples.

Draw a ring around the possible value of the ratio of Naomi's share to Samira's share.

$1 : 5$

$3 : 2$

$1 : 1$

$7 : 5$

[1]

- 4 Use the numbers in the box to complete the sentences.

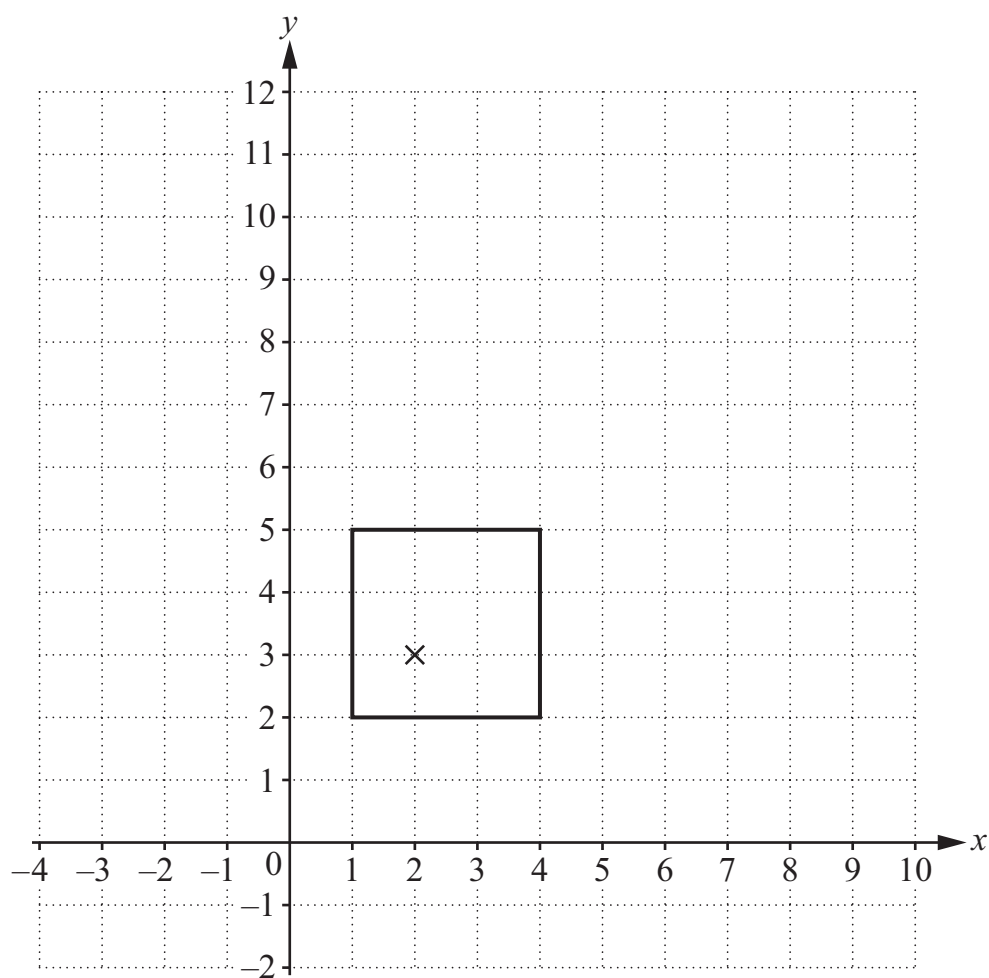
$\sqrt{19}$	$\frac{19}{6}$
8^2	π

..... and are rational numbers.

..... and are irrational numbers.

[1]

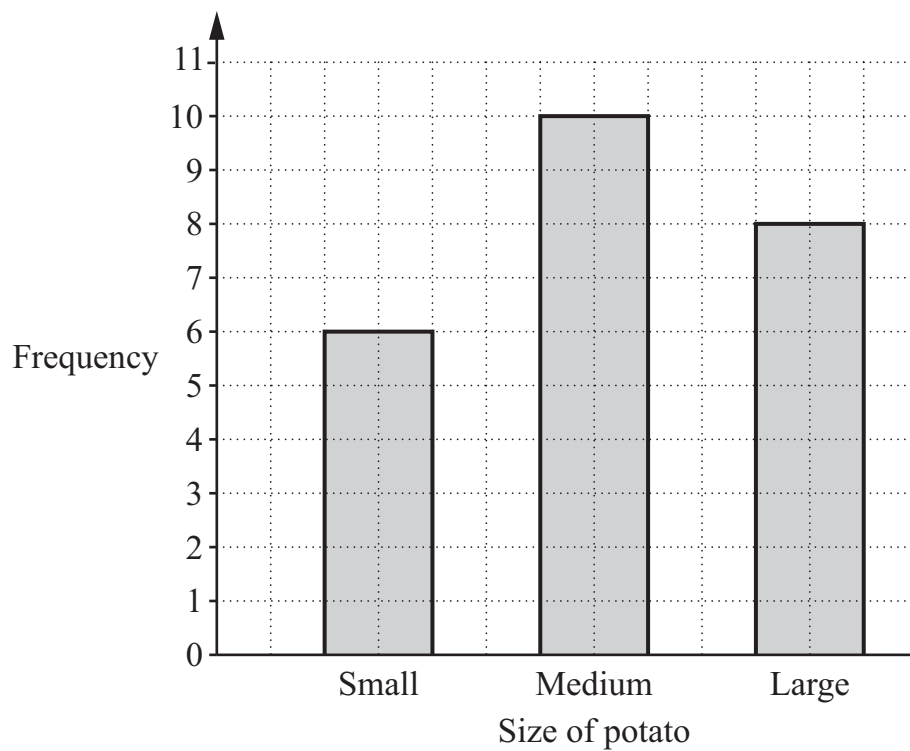
- 5 The diagram shows a square drawn on a coordinate grid.



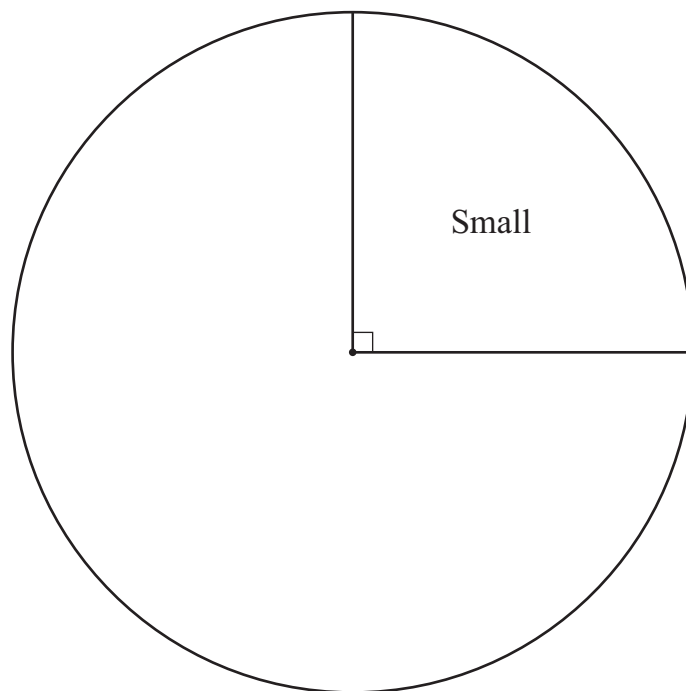
Draw the image of the square after an enlargement, scale factor 3, centre (2, 3).

[2]

- 6 The bar chart shows the number of small, medium and large potatoes in a sack.



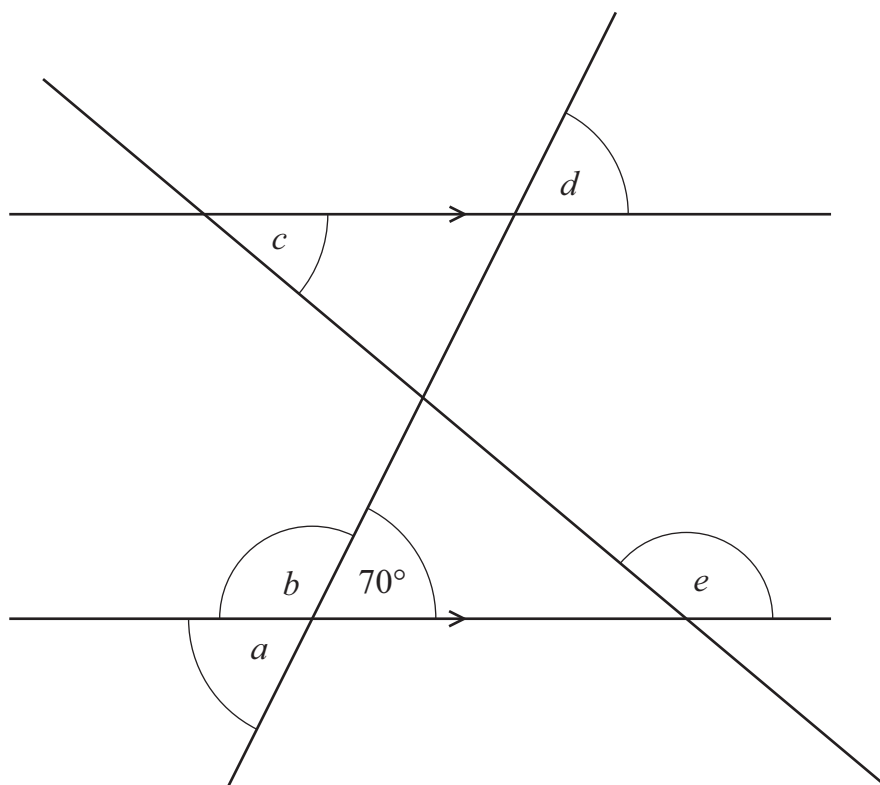
Complete the pie chart to show this information.



[3]

- 7 The diagram shows two parallel lines and two transversals.

NOT TO
SCALE

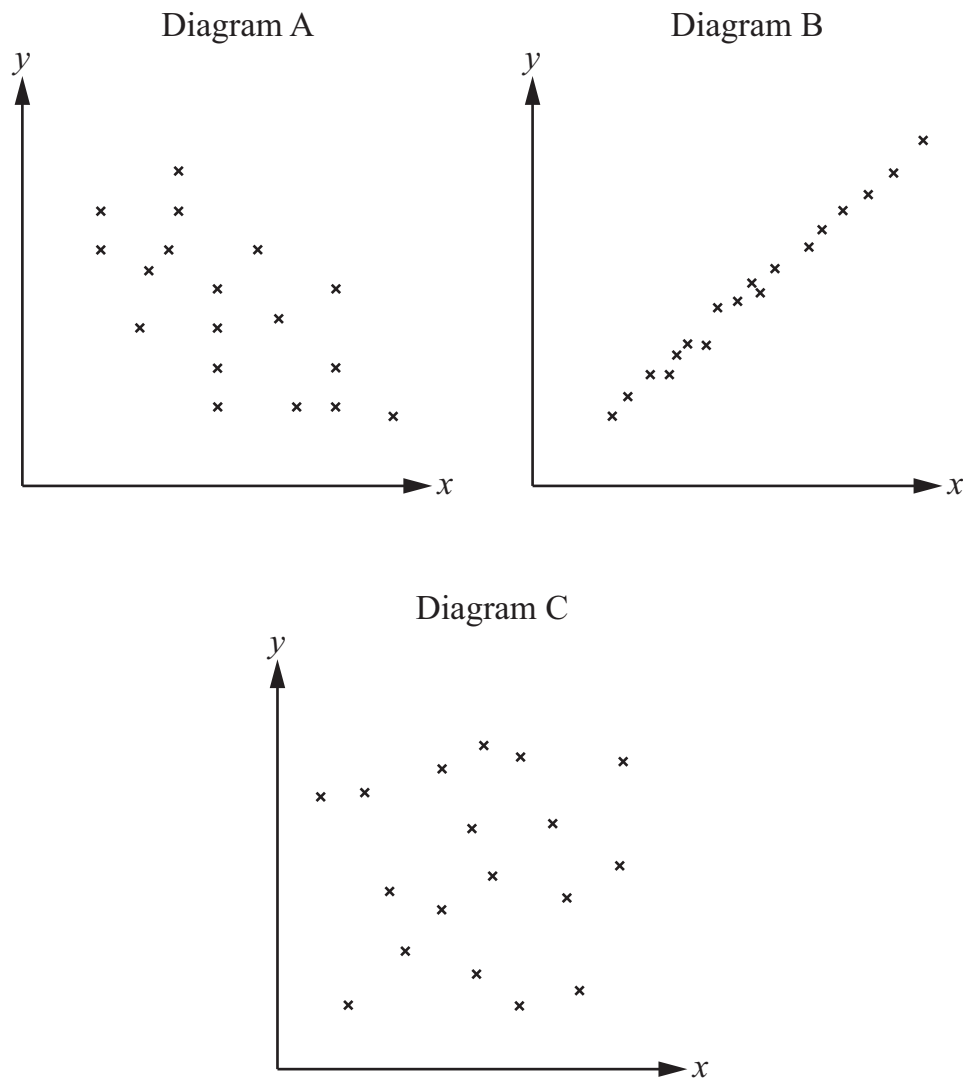


Draw a ring around all the angles that **must** be equal to 70° .

a *b* *c* *d* *e*

[1]

8 Here are three scatter diagrams.



Draw a line to match each scatter diagram to the best description of its correlation.

- | | |
|-----------|-----------------|
| Diagram A | Strong positive |
| | Weak positive |
| Diagram B | No correlation |
| | Weak negative |
| Diagram C | Strong negative |

[1]

- 9 Ahmed has two bags each containing four balls.
 The balls in bag A are numbered 1, 3, 5 and 6
 The balls in bag B are numbered 2, 3, 4 and 6

Ahmed picks a ball at random from each bag.
 He adds together the numbers on the two balls to get a total score.

Show that $P(\text{total score is even}) = P(\text{total score is more than } 8)$.
 You may use the table to help you.

		Bag A			
Bag B	+	1	3	5	6
	2	3			
	3			8	
	4				10
	6				

.....

 [3]

10 (a) Here are the definitions of some angles.

$A =$ interior angle of an equilateral triangle	$B =$ interior angle of a regular pentagon
$C =$ exterior angle of a regular pentagon	$D =$ exterior angle of a regular hexagon

Draw a ring around the **two** angles that add up to 180° .

A
B
C
D

[1]

(b) Find the sum of the interior angles of a 7-sided polygon.

..... $^\circ$ [1]

11 (a) A number, x , rounded to the nearest 100 is 1500

Complete the inequality to show the possible values of x .

..... $\leq x <$

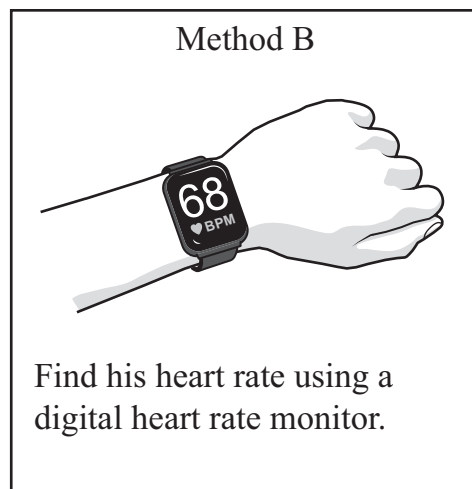
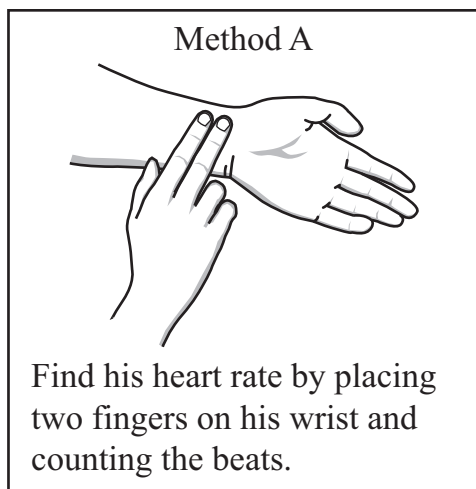
[1]

(b) The time taken to run a race is 9.87 seconds correct to 3 significant figures.

Write down the upper limit for the time.

..... s [1]

- 12 (a) Yuri wants to investigate how exercise changes his heart rate.
He considers two methods for measuring his heart rate.



Yuri decides to use method A.

Give one reason why this may **not** be the better method.

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

- (b) Yuri also wants to compare his results with those for other people his age.
He decides to repeat his experiment on 40 members of a gym.

Explain why his sampling method may **not** give him reliable data about the heart rates of other people his age.

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

- 13** Hassan thinks of a number, n .
 He multiplies it by 4
 His answer is greater than -8 and less than or equal to 20

(a) Write the correct inequality signs to complete the inequality.

$$-8 \dots\dots\dots 4n \dots\dots\dots 20$$

[1]

(b) Solve the inequality to find the possible values of n .
 Give your answer as an inequality in terms of n .

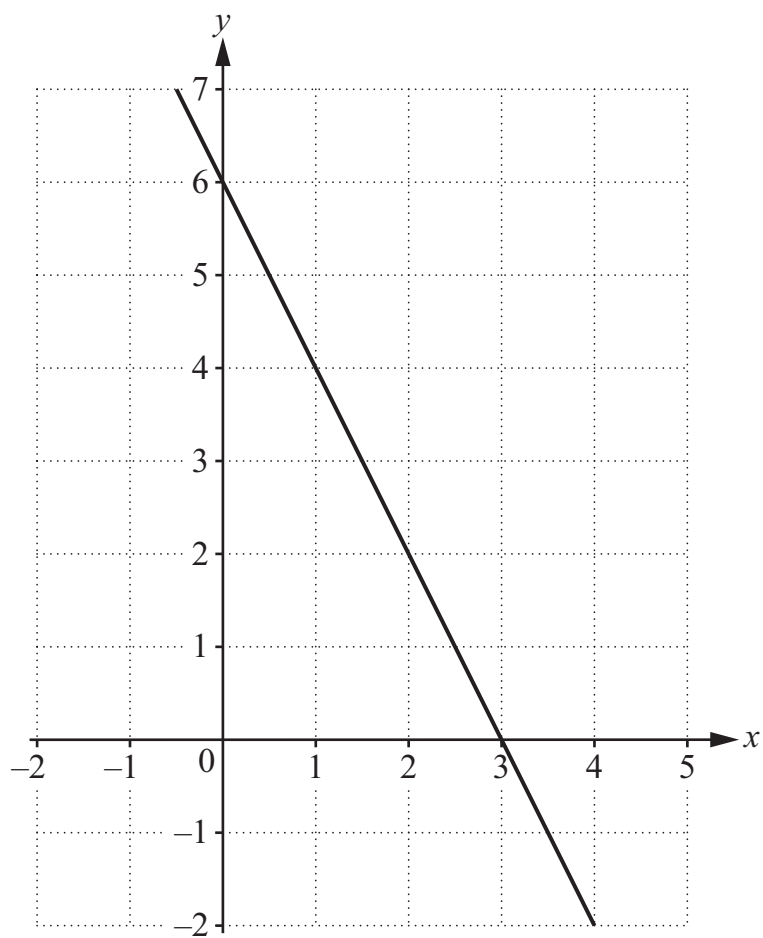
..... [2]

- 14** In September a coat costs \$62.50
 In October the cost of the coat increases by 4% of the cost in September.
 In November the cost of the coat increases by a further 14.6% of the cost in October.

Find the cost of the coat after both increases.

\$ [2]

- 15** Find the equation of the graph.
Give your answer in the form $y = mx + c$.



$y =$ [2]

16 The first term of a sequence is -0.7

The term-to-term rule of the sequence is ‘multiply by -1 and then add 0.5 ’

(a) Show that the sum of the first four terms of the sequence is 1

[2]

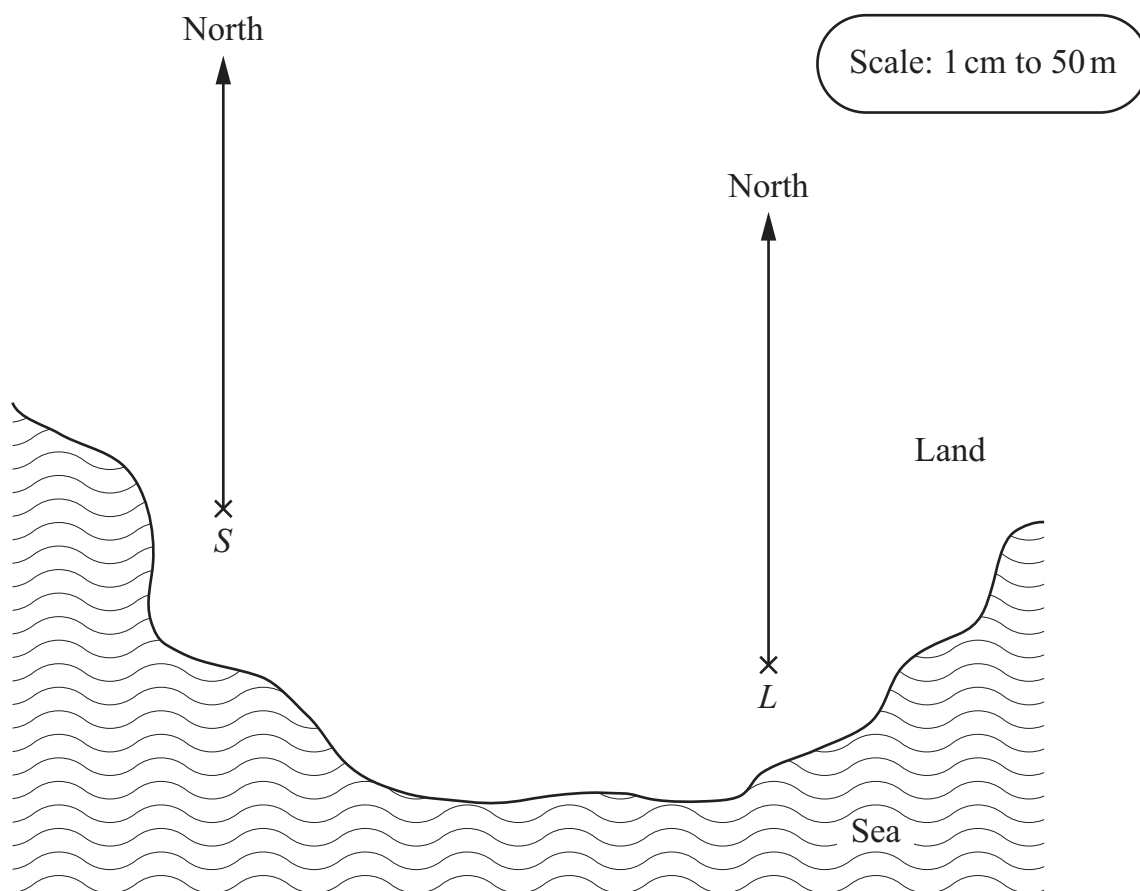
(b) Complete the following statements.

The sum of the first 12 terms of this sequence is

The sum of the first 400 terms of this sequence is

[1]

- 17 The map shows the position of a shop, S , and a library, L , on an island.
The scale of the map is 1 cm to 50 m.



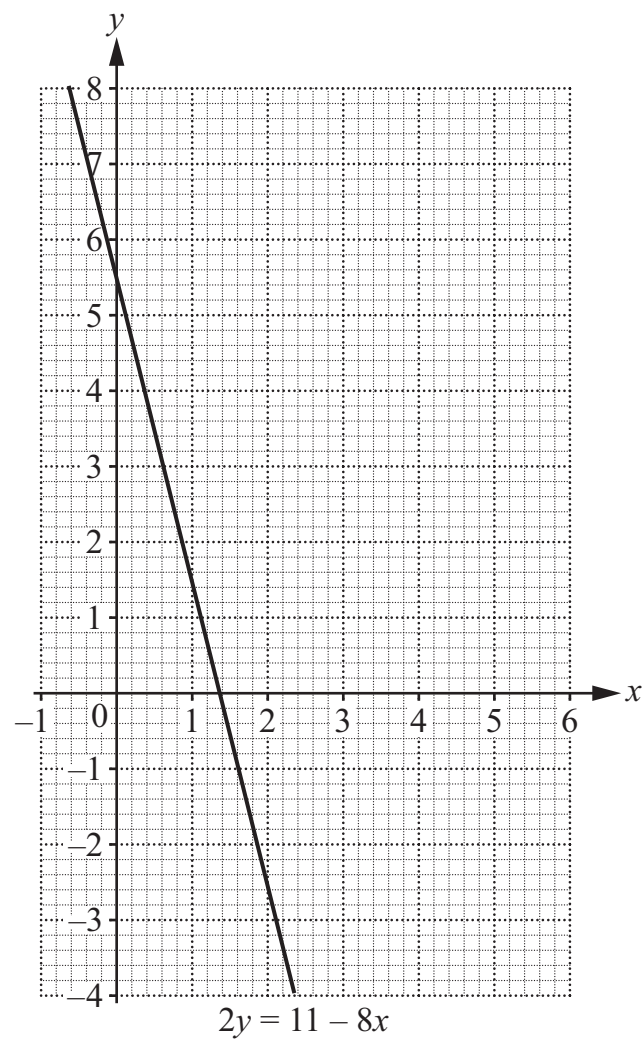
A restaurant, R , is built on the island

on a bearing of 130° from the shop
and
220 metres from the library.

Mark the position of the restaurant on the map.

[2]

18 The graph of $2y = 11 - 8x$ is shown on the grid.



- (a) Draw the graph of $2x - 5y = 10$ on the grid.
Use the table of values to help you.

x	0	
y		0

[2]

- (b) Use **your graph** to solve the simultaneous equations.

$$\begin{aligned} 2y &= 11 - 8x \\ 2x - 5y &= 10 \end{aligned}$$

$$\begin{aligned} x &= \dots\dots\dots \\ y &= \dots\dots\dots \end{aligned}$$

[2]

- 19 The cross-section of a prism is a regular polygon.
The prism has exactly 6 planes of symmetry.

Draw a ring around the shape of the cross-section.

square

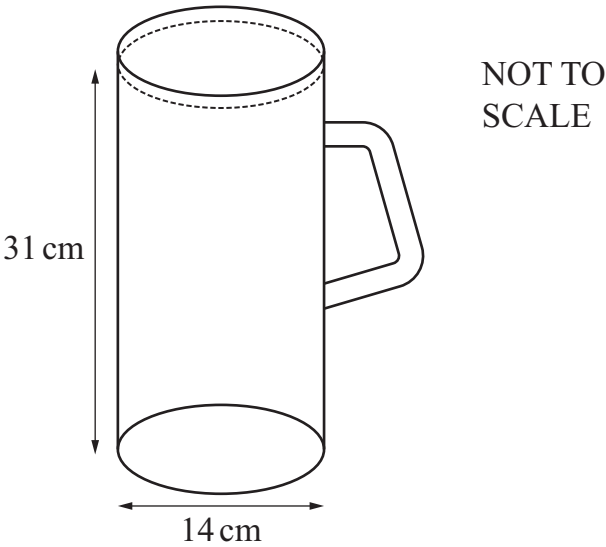
pentagon

hexagon

octagon

[1]

- 20 A jug is a cylinder with a diameter of 14 cm.
The height of the water in the jug is 31 cm.



The capacity of a glass is 315 cm³.
Find how many of these glasses can be completely filled using the water in the jug.

[3]

21 Here are some of the inputs and outputs of a function.

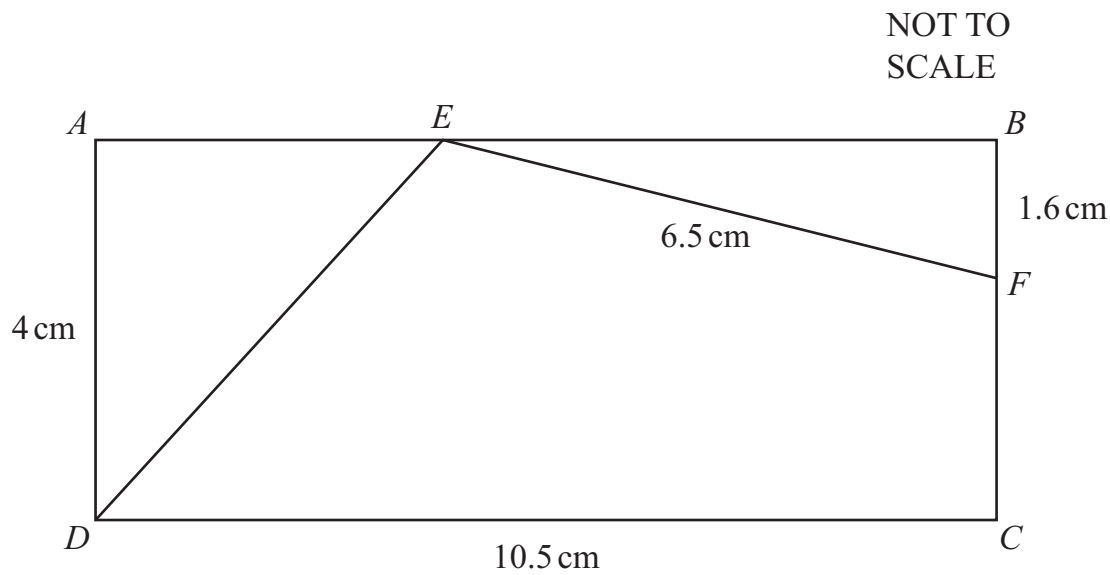
input		output
x	$\rightarrow$	$5x^2$
a	$\rightarrow$	180

a is an integer.

Find the **two** possible values of the output when the input is $a + 1$

..... and [3]

22 $ABCD$ is a rectangle measuring 4 cm by 10.5 cm.



$EF = 6.5\text{ cm}$
 $BF = 1.6\text{ cm}$

Calculate DE .

..... cm [4]

23 a and b are positive integers.

$$\frac{a}{b} = 0.37 \text{ correct to 2 significant figures.}$$

b is a cube number less than 200

Find a possible pair of values for a and b .

$a =$

$b =$

[2]

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MATHEMATICS

0862/01

Paper 1

October 2023

1 hour

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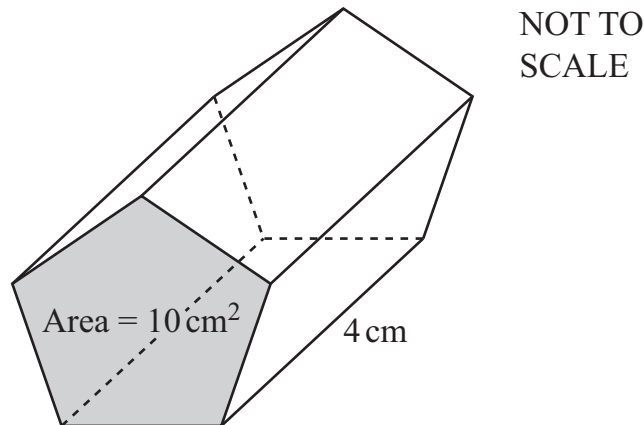
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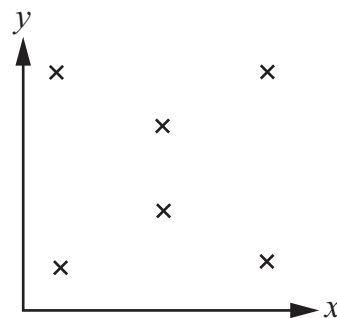
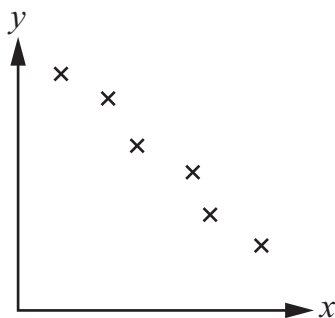
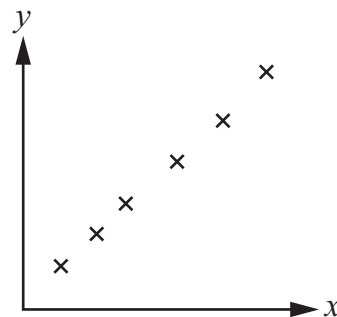
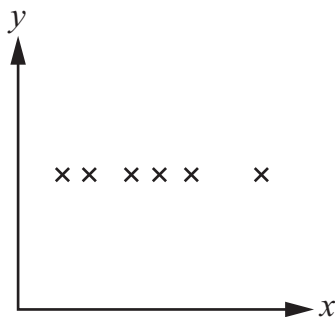
- 1 The area of the cross-section of a prism is 10 cm^2 .
The length of the prism is 4 cm.



Calculate the volume of the prism.

..... cm^3 [1]

- 2 Draw a ring around the scatter graph that shows positive correlation.



[1]

- 3 Write each of these expressions in the correct column in the table.

4^3

$(-2)^3$

$\sqrt[3]{-8}$

$(-5)^2$

One has been done for you.

Equivalent to a natural number	Not equivalent to a natural number
4^3	

[1]

- 4 Complete each statement using one of these symbols.

< or >

One has been done for you.

$20 \div 1\frac{1}{2}$	<	20
.....		
$20 \times \frac{3}{4}$		20
.....		
$20 \times 2\frac{1}{5}$		20
.....		
$20 \div \frac{1}{5}$		20
.....		

[1]

- 5 Solve.

$$\frac{36}{t} = 4$$

$$t = \dots\dots\dots [1]$$

- 6 Calculate.

$$1 - \left(\frac{9}{8} - \frac{1}{2} \right)$$

..... [2]

- 7 Draw a ring around the statement that is true.

$$3 < \sqrt{7} < 4$$

$$4 < \sqrt{18} < 5$$

$$5 < \sqrt{36} < 6$$

$$6 < \sqrt{50} < 7$$

[1]

- 8 Jamila works out an estimate of 104.37×0.615
Her estimate is $100 \times 1 = 100$

Complete the statement to show how to work out a better estimate of 104.37×0.615

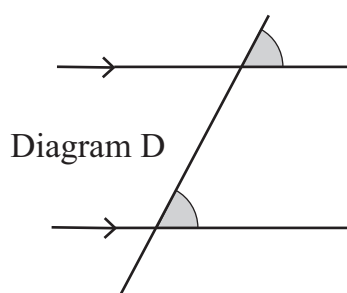
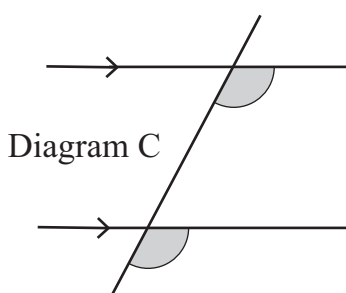
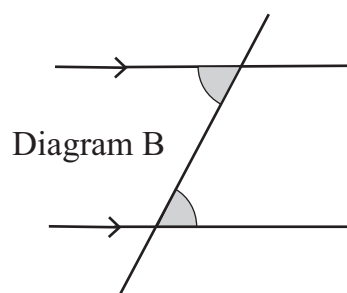
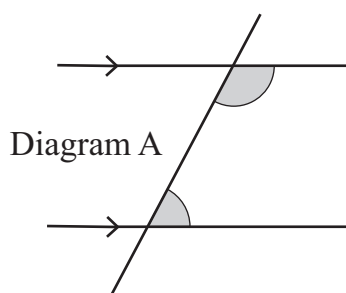
104.37×0.615 is approximately $\times$ = [1]

- 9 A team can either win, lose or draw a game of softball.
The table shows the probability the team will win or lose a game.

Outcome of game	Win	Lose	Draw
Probability	0.5	0.4	

Complete the table. [1]

10 Each diagram shows a pair of angles on parallel lines.



Complete the table to show if each diagram shows a pair of corresponding angles or not. One has been done for you.

Corresponding angles	Not corresponding angles
	A

[1]

11 (a) Write 7 000 000 in standard form.

..... [1]

(b) Write these numbers in order of size, starting with the smallest.

$$5.5 \times 10^4$$

$$6.4 \times 10^{-1}$$

$$5.5 \times 10^{-1}$$

.....

smallest

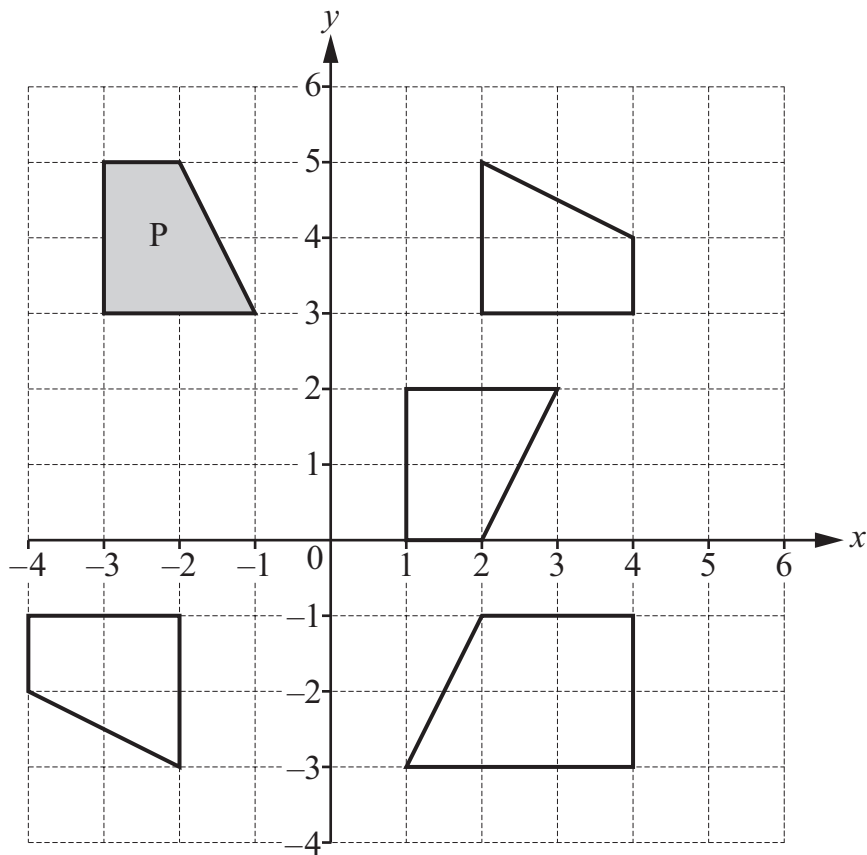
.....

.....

largest

[1]

12 Five quadrilaterals are shown on the grid.



Quadrilateral P is transformed by a reflection followed by a translation.

Draw a ring around the unshaded quadrilateral that is **not** a possible image of quadrilateral P.

[1]

13 (a) Tick (✓) to show each fraction that is equivalent to a **recurring** decimal.

$$\frac{1}{6}$$

☐

$$\frac{6}{8}$$

☐

$$\frac{4}{12}$$

☐

[1]

(b) n is an integer where $0 < n < 15$

$\frac{n}{15}$ is equivalent to a **terminating** decimal.

Draw a ring around the number of possible values of n .

0

1

2

4

[1]

14 The table shows some powers of 7 and their final digit.

Power of 7	Value	Final digit
7^1	7	7
7^2	49	9
7^3	343	3
7^4	2401	1
7^5	16 807	7
7^6	117 649	9
7^7	823 543	3

(a) The final digit of 7^n is 1

Write down a possible value of n if $n > 7$

..... [1]

(b) Use patterns in the table to find the final digit of 7^{22}

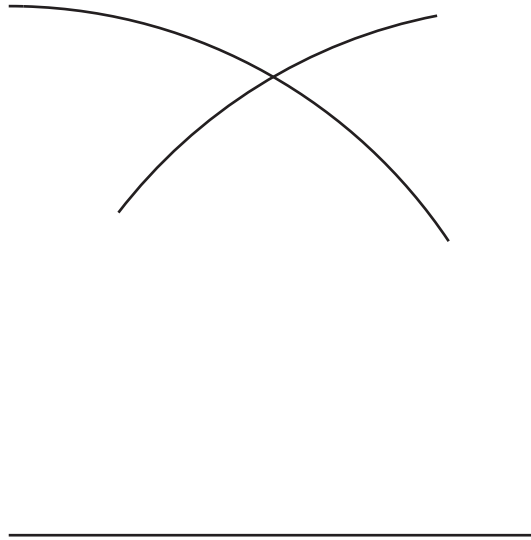
..... [1]

15 Calculate.

$$\frac{6 \times -1.8}{-0.2}$$

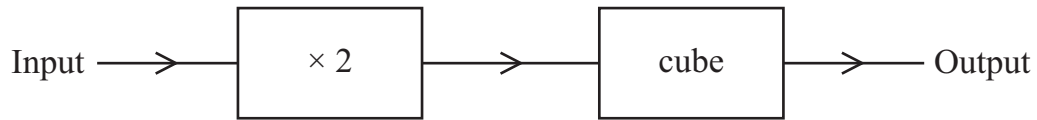
..... [2]

- 16** Construct an angle of 30° .
The construction has been started for you.



[2]

17 A function is defined by this function machine.



(a) Complete the table.

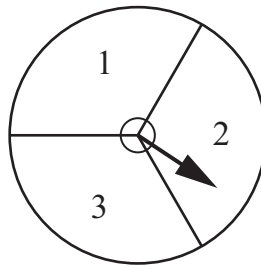
Input	Output
5	
$\frac{3}{2}$	

[2]

(b) Calculate the **input** when the output is -64

..... [2]

18 Pierre spins this fair spinner twice.



He adds together his two numbers to get a total.
Pierre makes two statements.

Tick (✓) to show if each statement is true or false.

The possible totals are 2, 3, 4, 5 and 6

$$P(\text{total is 3}) = \frac{1}{5}$$

True	False
☐	☐
☐	☐

[1]

19 Solve.

$$2x - y = 17$$

$$x + 3y = -2$$

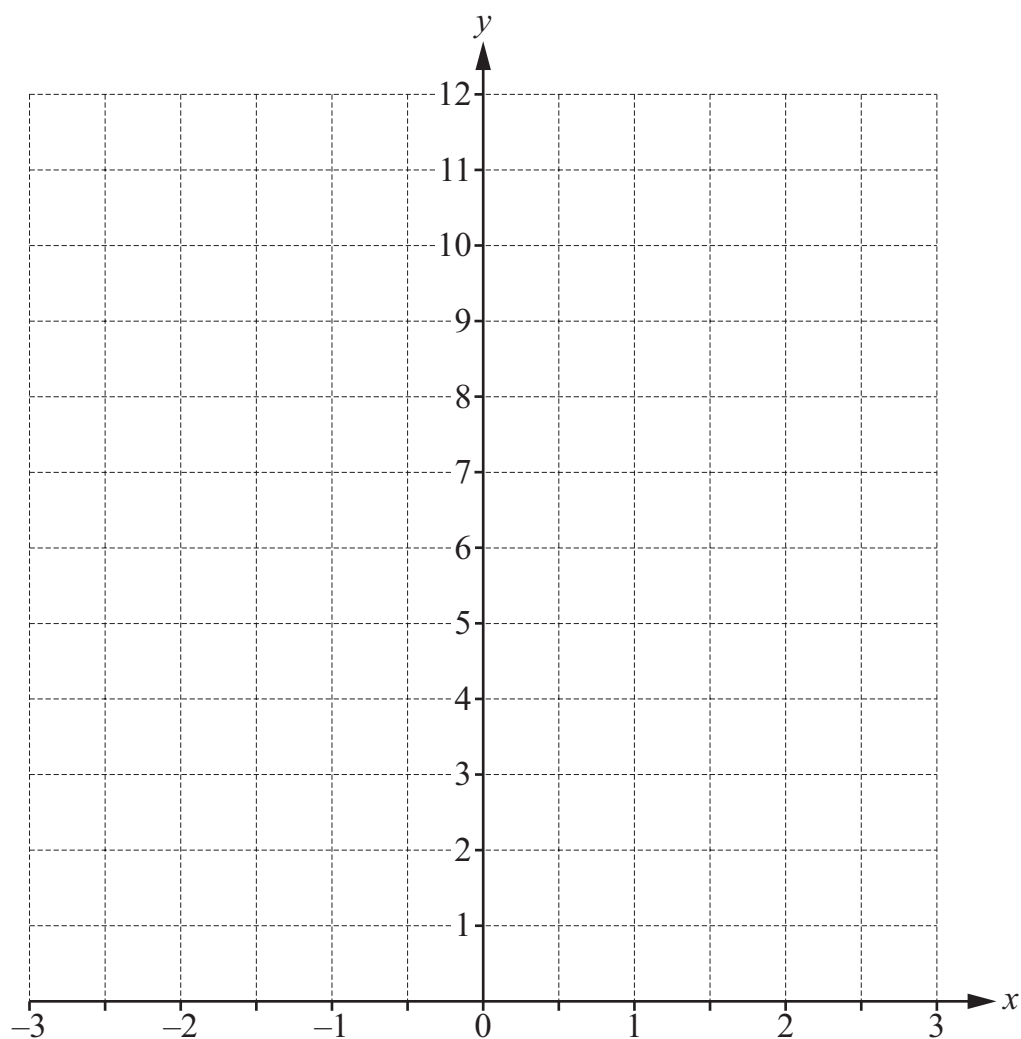
$$x = \text{.....}$$

$$y = \text{.....}$$

[3]

- 20** Draw the graph of $y = x^2 + 2$ 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							



[3]

- 21** A quadrilateral has an area of 5 cm^2 .
The quadrilateral is enlarged by scale factor 4
Calculate the area of the enlarged quadrilateral.

..... cm^2 [2]

- 22 There are 20 children in Class A and 20 children in Class B.
Each child completes a test.

The back-to-back stem-and-leaf diagram shows some of the marks scored by the children.
The highest mark for Class B is **not** included.

Class A							Class B					
						0	8	9				
			7	6	4	1	0	3	6	7	8	9
	9	7	3	3	1	2	2	4	4	9		
8	6	2	0	0	0	3	1	3	5	7	8	
		7	7	5	2	4	2	7				
				6	1	5						

Key: 4 | 1 | 0 represents a mark of 14 in Class A and 10 in Class B

- (a) The range of marks for Class A is the same as the range of marks for Class B.

Complete the diagram for **Class B** by writing in the highest mark.

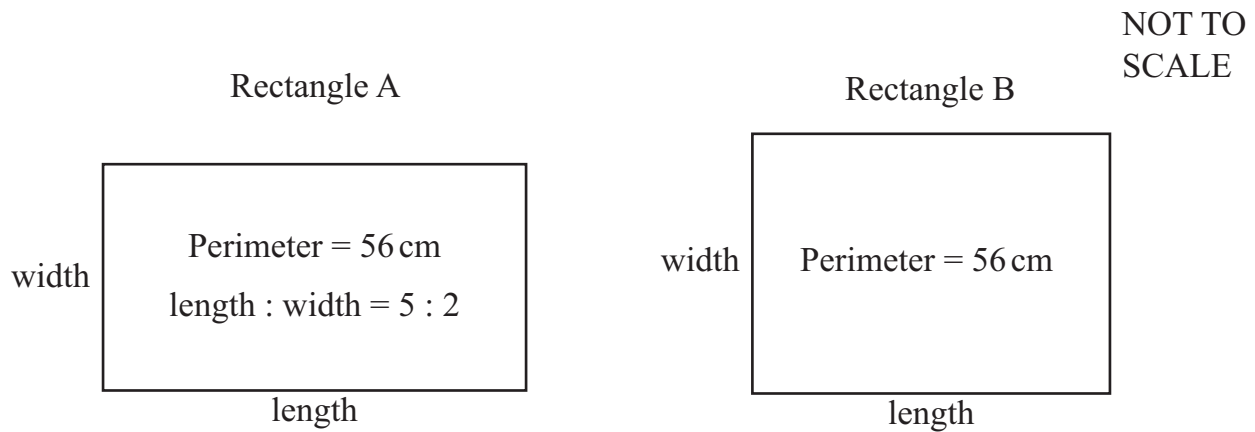
[2]

- (b) Tick (✓) to show if each conclusion is true or false.

	True	False
A total of 5 students in the two classes scored less than 15 marks.	☐	☐
The modal mark for Class A is greater than the modal mark for Class B.	☐	☐

[1]

23 The diagram shows some information about two rectangles.



The length of rectangle B is 2.5 cm **less** than the length of rectangle A.

Calculate the ratio length : width for rectangle B.
Give your answer in its simplest form.

..... : [3]

- 24 The term-to-term rule of a sequence is multiply by 2
The first term of the sequence is a .
The sum of the first term and the third term is 35

Work out the sum of the first **two** terms.

..... [3]

- 25 $0.45 \times 10^p = 4500$ and $5070 \times 10^q = 0.0507$

Find the value of $0.038 \div 10^{p+2q}$

..... [2]

26 A polygon has 7 sides.

The mean of the sizes of the 6 smallest angles in the polygon is 115° .

Calculate the size of the largest angle.

..... $^\circ$ [3]

27 The solution, x , to the equation $4x = 12 - px$ is an integer.
 p is a positive integer.

Find a possible value of p .

..... [1]

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MATHEMATICS

0862/02

Paper 2

October 2023

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.

- 1 Draw a ring around the sum of the exterior angles of an equilateral triangle.

120°

180°

360°

900°

[1]

- 2 Draw a ring around the unit that would be most suitable for measuring the mass of a ship.

light year

megabyte

microgram

tonne

[1]

- 3 Mia says, 'y is 3 more than x squared'.

Write down a formula for y in terms of x.

y = [1]

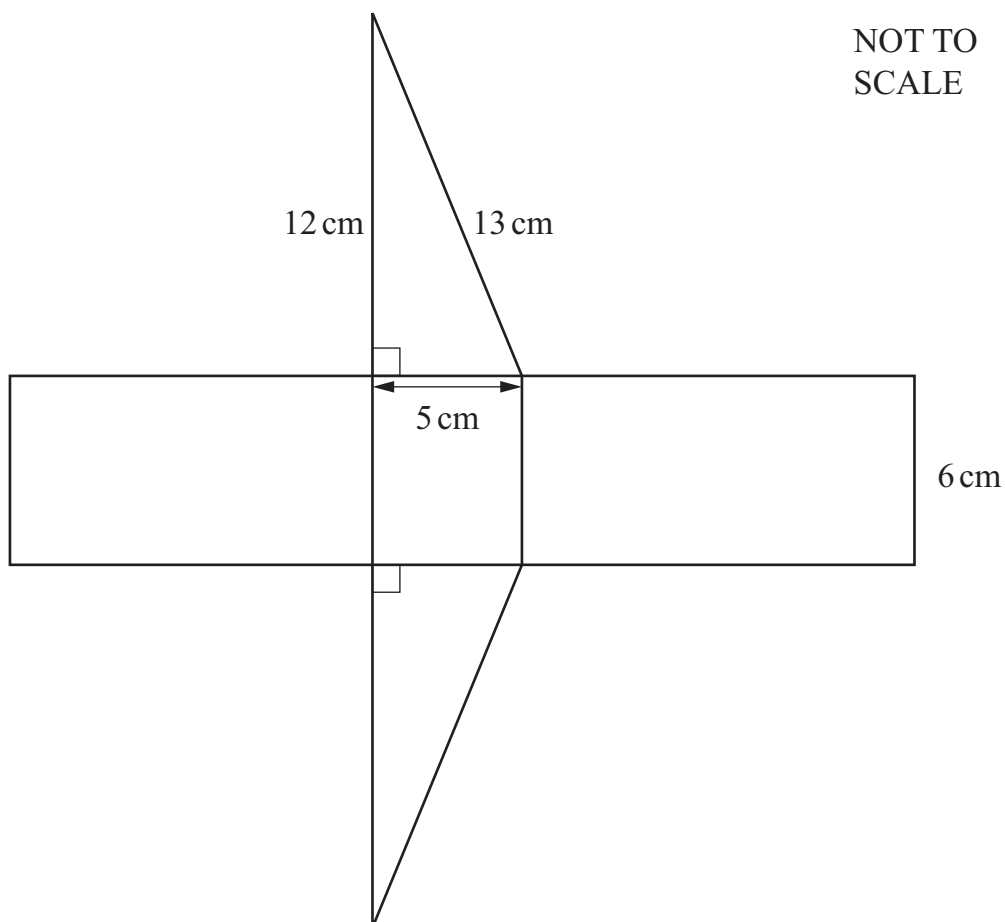
- 4 Here are the first five terms of a sequence.

11, 14, 19, 26, 35

Find the next two terms in the sequence.

..... and [2]

- 5 Here is the net of a triangular prism.
It is formed from three rectangles and two right-angled triangles.

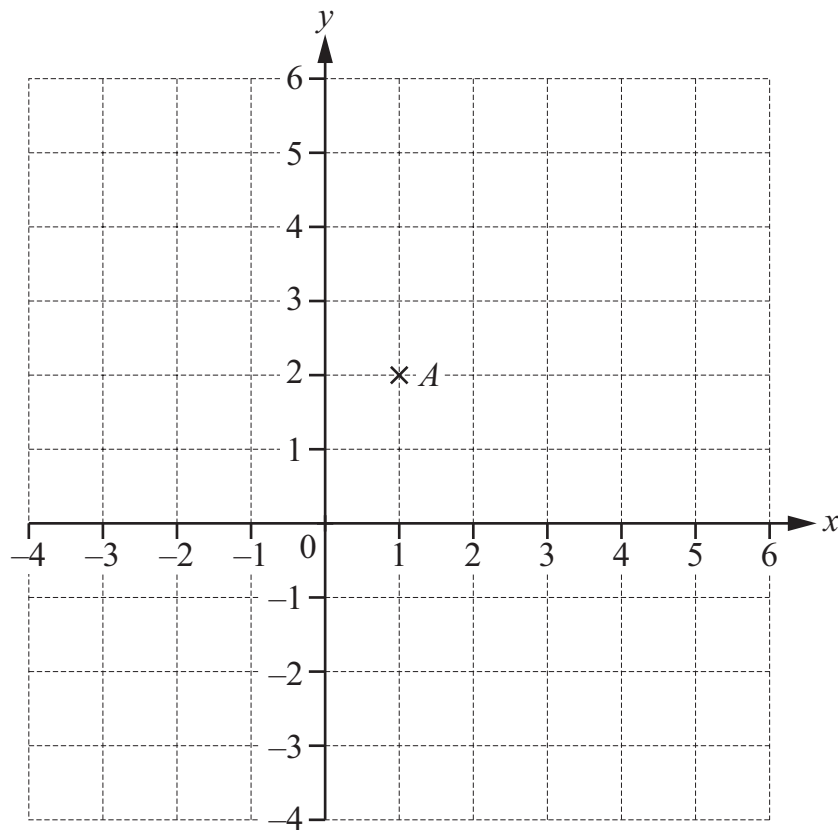


Tick (✓) to show if each of these facts about the faces of the triangular prism is true or false.

	True	False
Three faces have the same area.	☐	☐
The area of the largest face is 72 cm^2 .	☐	☐

[1]

- 6 Point A has coordinates $(1, 2)$.



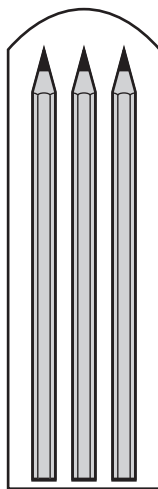
Point A is first translated by vector $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ to give point B .

Point B is then translated by vector $\begin{pmatrix} 0 \\ -5 \end{pmatrix}$ to give point C .

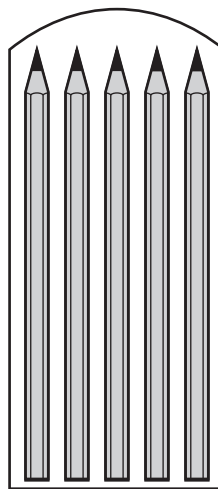
Find the coordinates of point C .

(..... ,) [2]

- 7 Pencils can be bought in small packets or large packets.



small packet has 3 pencils



large packet has 5 pencils

Mike buys m small packets and n large packets.
Altogether he buys 86 pencils.

Draw a ring around the equation that represents this situation.

$3m + 5n = 86$

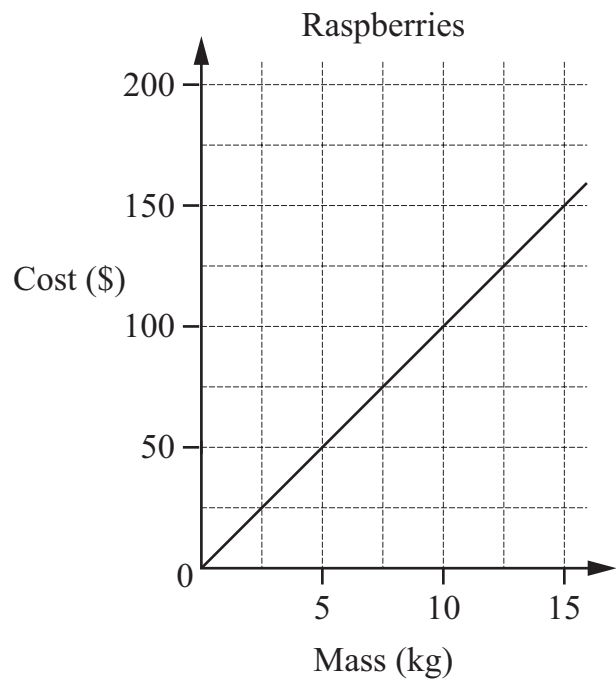
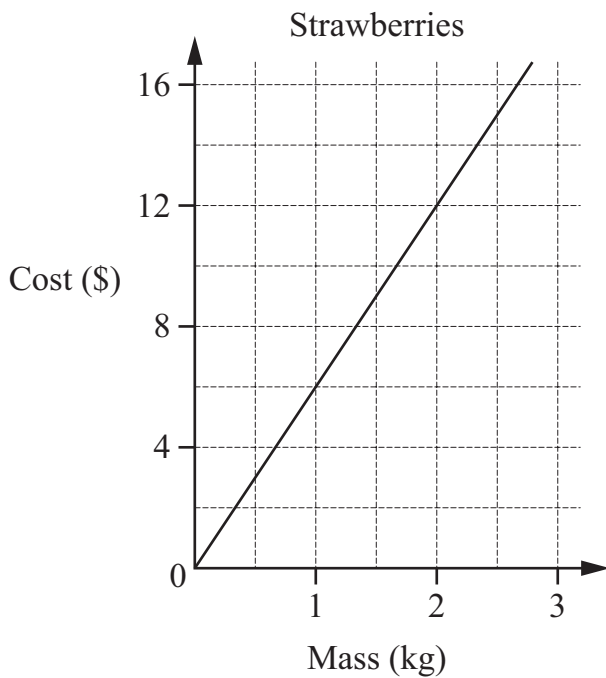
$m + n = 86$

$8(m + n) = 86$

$5m + 3n = 86$

[1]

- 8 The graphs show the costs, in \$, of different masses of strawberries and raspberries.



Find how much more 1 kg of raspberries costs than 1 kg of strawberries.

\$ [2]

- 9 It will take 5 workers 12 days to harvest some apples.

Calculate how many workers are needed to harvest these apples in 4 days.

..... [1]

10 Complete each statement to make it true.

$$\frac{8}{4x} = \frac{\boxed{}}{x}$$

$$y^{11} \times \boxed{} = y^{12}$$

$$(\boxed{})^2 = w^{10}$$

[3]

11 A train company says the probability that a train arrives at a station on time is 0.85
Ahmed selects a random sample of 80 trains arriving at this station.

Calculate the expected number of these trains that will arrive at this station on time.

..... [1]

12 (a) Draw lines to match the equivalent inequalities.

$$x - 1 > 2$$

$$x > 1$$

$$2x > 2$$

$$x > 2$$

$$\frac{x}{2} > 1$$

$$x > 3$$

[1]

(b) Solve the inequality.

$$11 - 2x \leq 20$$

..... [2]

13 Here are the coordinates of four points.

$A(4, -6)$

$B(-4, 5)$

$C(-3, -2)$

$D(-3, 2)$

Tick (✓) to show if the midpoint of each line segment is above, on or below the x -axis.

Line segment	Above x -axis	On x -axis	Below x -axis
AB	☐	☐	☐
CD	☐	☐	☐

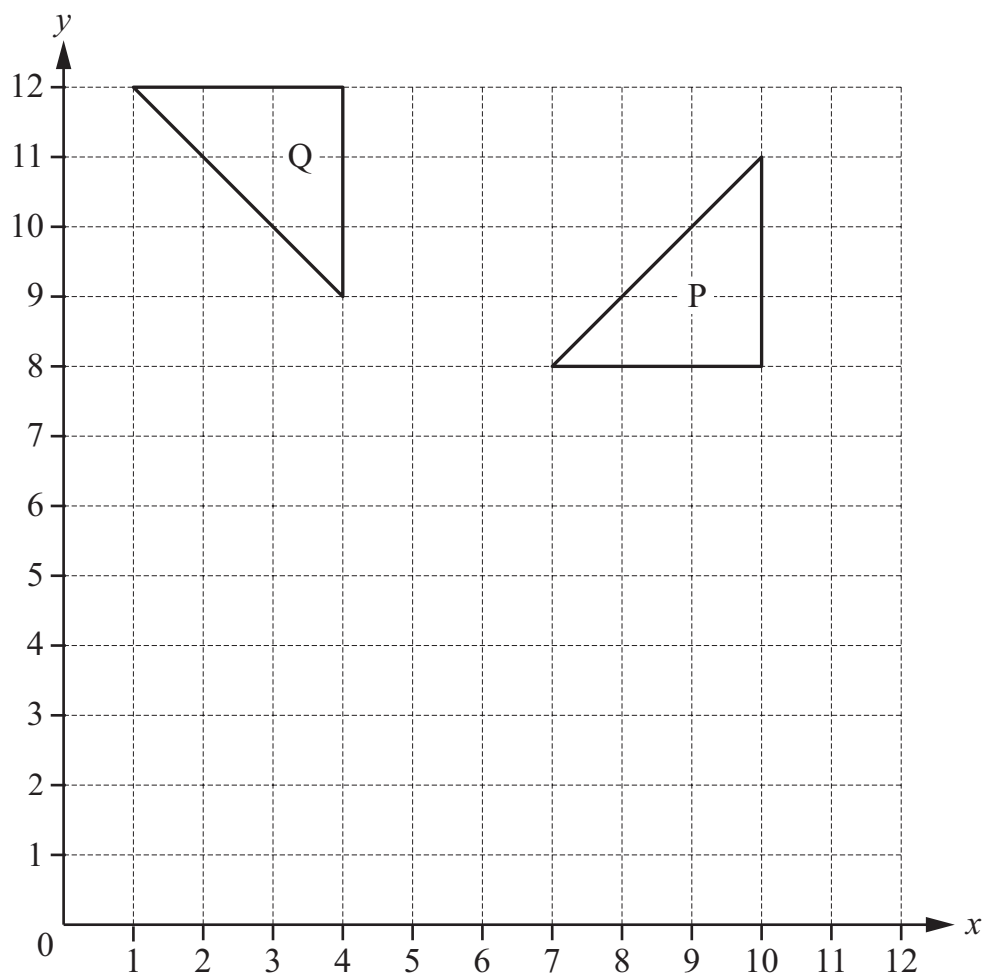
[1]

14 When 80 is increased by $a\%$ the result is between 105 and 110
 a is a multiple of 4

Find a possible value of a .

$a =$ [1]

15 The grid shows the positions of triangle P and triangle Q.



(a) Describe fully the **single** transformation that maps triangle P onto triangle Q.

.....

.....

[3]

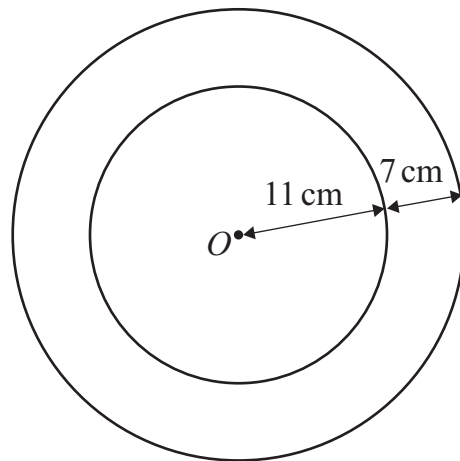
(b) Triangle R is congruent to triangle P.

Triangle R maps onto itself when it is reflected in the line $y = x$.

Draw a possible position for triangle R on the grid.

[1]

- 16 The diagram shows two circles, each with centre O .



NOT TO
SCALE

Show that the circumference of the larger circle is approximately 44 cm more than the circumference of the smaller circle.

[2]

17 The table shows information about the ages of 100 runners.

Age (A , years)	Frequency
$20 \leq A < 30$	34
$30 \leq A < 40$	18
$40 \leq A < 50$	28
$50 \leq A < 60$	20

Calculate an estimate of the mean age of these runners.

..... years [3]

18 A teacher asks three students to state the equations of two lines with a **positive** gradient.

Tick (✓) to show if each student's answer is correct.

Answer is correct

Chen
$y = x + 8$ $y = 2x - 3$

☐

Eva
$y = 4 - x$ $y = 7 - 2x$

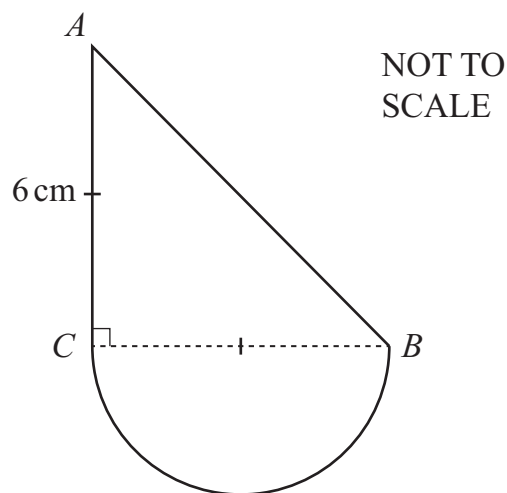
☐

Lily
$y = 3x$ $y = \frac{1}{2}x$

☐

[1]

- 19 A shape is formed from
a right-angled triangle ABC
and
a semicircle with diameter CB .



$$AC = CB = 6 \text{ cm.}$$

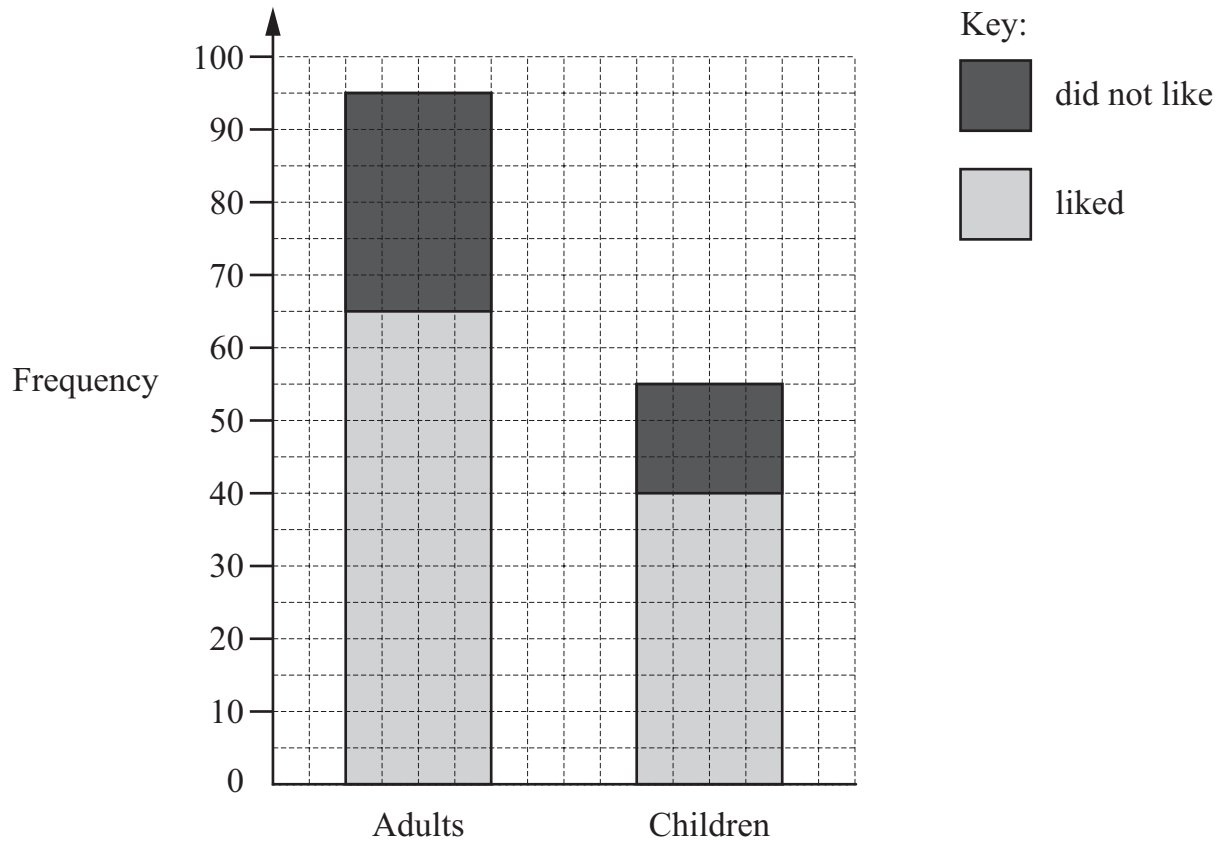
- (a) Find the area of the whole shape.

..... cm^2 [3]

- (b) Calculate the length of AB .

..... cm [2]

- 20 Anastasia asks the audience of a film if they liked it or did not like it. The compound bar chart shows her results.



Show that 30% of people in the audience **did not like** the film.

[2]

- 21 (a) The distance between two cities is 17 000 km correct to the nearest 1000 km.

Complete the inequality to show the limits of the distance.

$$16\,500\text{ km} \leq \text{distance} < \dots\dots\dots \text{ km}$$

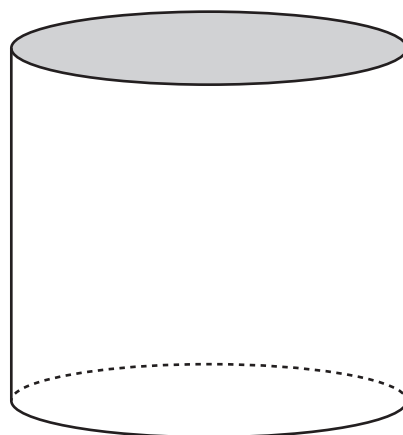
[1]

- (b) The mass of a bag is 1.00 kg correct to 2 decimal places.

Find the lower limit of the mass.

$$\dots\dots\dots \text{ kg} \quad [1]$$

- 22 A solid cylinder has a height of 18 cm.



NOT TO
SCALE

18 cm

The curved surface area of the cylinder is 845 cm^2 .

Find the area of the top of the cylinder.

$$\dots\dots\dots \text{ cm}^2 \quad [3]$$

23 Find the values of the integers a and b when

$$(x - 5)(x + 5) + ax = (x - 3)(x + 12) + b$$

$$a = \text{.....}$$

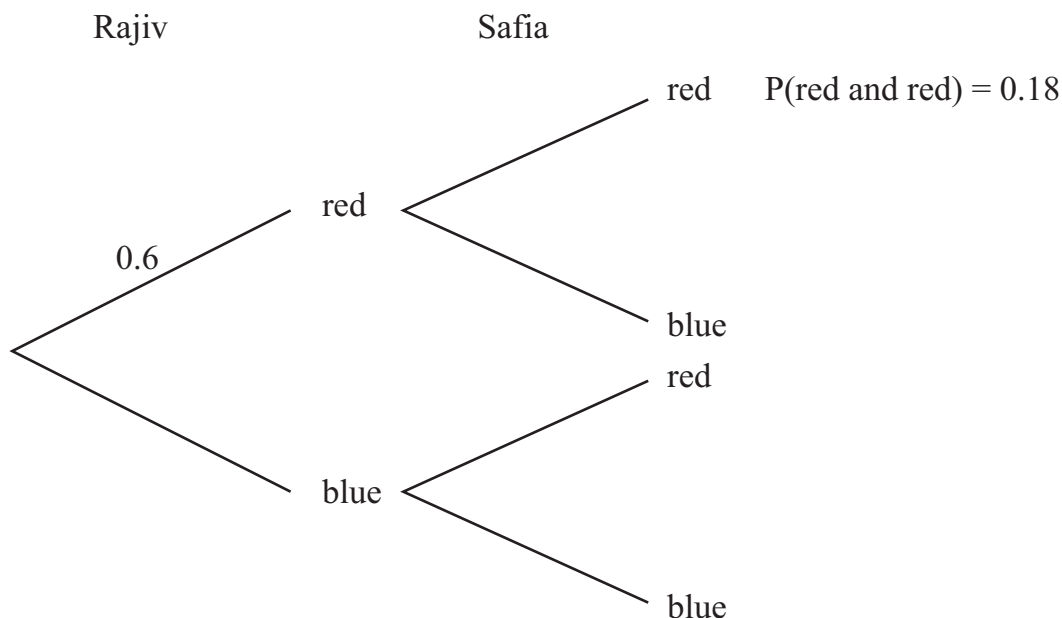
$$b = \text{.....}$$

[3]

- 24 Rajiv has a bag containing only red counters and blue counters.
Safia has a different bag containing only red counters and blue counters.
They each take one counter at random from their bag.

The probability that Rajiv picks a red counter from his bag is 0.6

The probability that they **both** pick a red counter is 0.18



Find the probability that they both pick a **blue** counter.
You may use the tree diagram to help you.

..... [4]

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MATHEMATICS

0862/01

Paper 1

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 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 [].

This document has **12** pages.

- 1 Youssef thinks of a number, n .
He adds 3
His answer is greater than or equal to -5 and less than 17

Write the correct inequality signs to complete the inequality.

$$-5 \text{ } n + 3 \text{ } 17 \quad [1]$$

2 $200^{-3} = \frac{1}{200^w}$

Write the value of w .

$$w = \text{.....} \quad [1]$$

- 3 Solve the simultaneous equations.

$$\begin{aligned} x - 2y &= 2 \\ 5x + 2y &= 58 \end{aligned}$$

$$\begin{aligned} x &= \text{.....} \\ y &= \text{.....} \end{aligned} \quad [2]$$

- 4 Find the exterior angle of a regular 10-sided polygon.

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

5 Here is a sequence of calculations.

$$1 \times 7 - 2 \times 1 = 5$$

$$3 \times 8 - 4 \times 2 = 16$$

$$5 \times 9 - 6 \times 3 = 27$$

$$7 \times 10 - 8 \times 4 = 38$$

$$9 \times 11 - 10 \times 5 = 49$$

Complete the next calculation in this sequence.

$$11 \times 12 - \dots \times \dots = \dots$$

[1]

6 A regular polygon has k lines of symmetry.

Tick (✓) the correct statement about the order of rotational symmetry of the polygon.

The order of rotational symmetry is 1

☐

The order of rotational symmetry is clockwise

☐

The order of rotational symmetry is k

☐

The order of rotational symmetry is $k + 1$

☐

[1]

- 7 (a) Mike and Pierre are each asked to write the equations of two lines that have a **positive** y -intercept.

Tick (✓) to show if each student is correct or not correct.

		Both equations have a positive y -intercept	
		Correct	Not correct
Mike			
$y = -x + 3$	$y = 2 - x$	☐	☐
Pierre			
$y = x + 0.5$	$y = 7 - 5x$	☐	☐

[1]

- (b) The equation of a line is $7 = 3x + y$

Find the gradient and the y -intercept of this line.

gradient =

y -intercept =

[2]

- 8 Tick (✓) to show if each conversion is correct or not correct.

	Correct	Not correct
60 nm = 6 mm	☐	☐
2000 GB = 2 MB	☐	☐

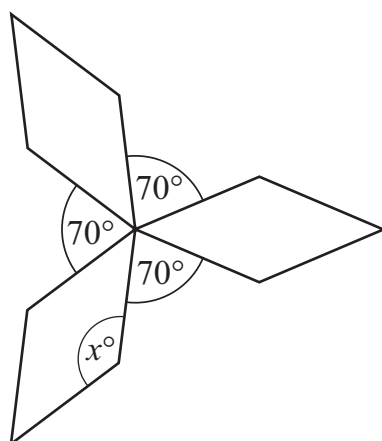
[1]

- 9 Represent $-2 < x \leq 4$ on the number line.



[1]

- 10 The diagram shows a shape made with three identical rhombuses.



NOT TO
SCALE

Find the value of x .

$x =$ [4]

- 11 Gabriella collects the heights of 11 indoor plants and 12 outdoor plants. The table and the incomplete back-to-back stem-and-leaf diagram show information about her results.

Outdoor plants	
Modal height	39 cm
Minimum height	17 cm
Range	26 cm

Indoor plants							Outdoor plants					
			9	8	7	0						
		9	9	5	4	1						
			9	8	6	2	3	7	7			
					0	3	4	5	8	9		
						4	1					

Key: 6 | 2 | 3 represents indoor plant height of 26 cm
and outdoor plant height of 23 cm

- (a) Use the information in the table to complete the back-to-back stem-and-leaf diagram.

[3]

- (b) Calculate the range of heights for the indoor plants.

..... cm [1]

- 12 Work out the value of $\frac{n^4 + 29}{n + 7}$ when $n = 3$

..... [2]

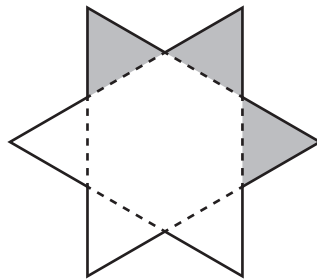
13 (a) Write 62 000 in standard form.

..... [1]

(b) Write 8.1×10^{-3} as an ordinary number.

..... [1]

14 The diagram shows a shape made from 6 congruent equilateral triangles and a regular hexagon.



The regular hexagon has an area of 140 cm^2 .

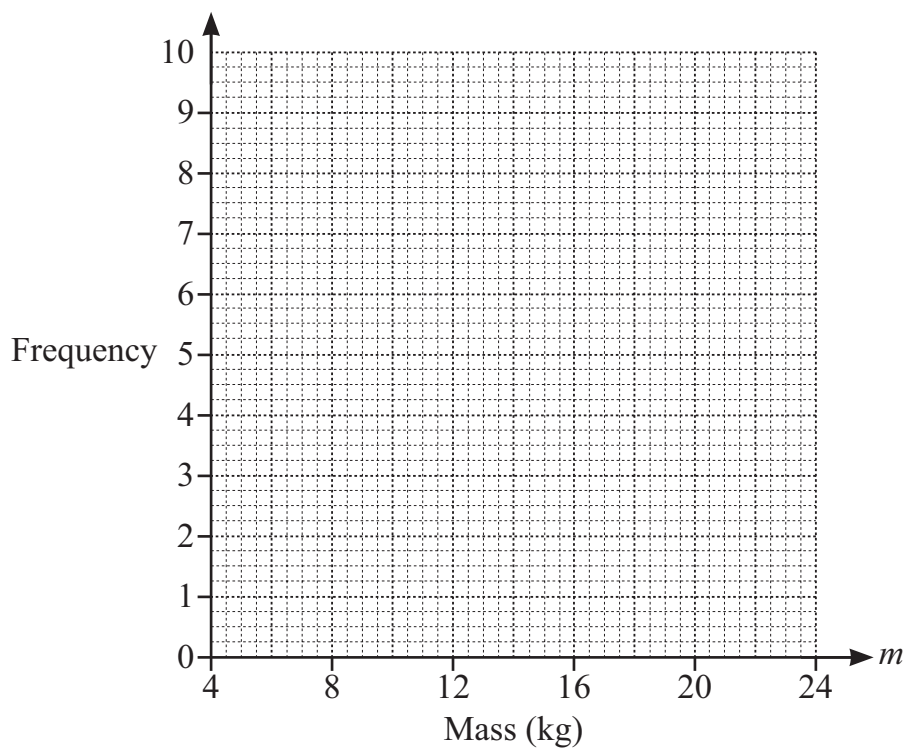
Calculate the shaded area.

..... cm^2 [1]

15 The table shows information about the mass of each of 23 boxes.

Mass (m , kg)	$4 \leq m < 8$	$8 \leq m < 12$	$12 \leq m < 16$	$16 \leq m < 20$	$20 \leq m < 24$
Frequency	8	7	3	2	3

(a) On the grid, draw a frequency polygon to show this information.



[3]

(b) Draw a ring around the interval that contains the median mass.

$4 \leq m < 8$ $8 \leq m < 12$ $12 \leq m < 16$ $16 \leq m < 20$ $20 \leq m < 24$

[1]

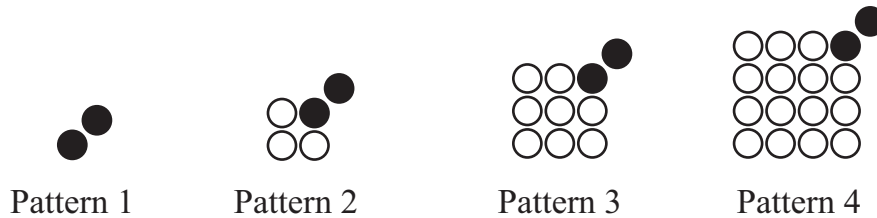
16 $\frac{1}{9} = 0.\dot{1}$

Use this fact to convert $\frac{7}{9}$ to a decimal.

Give your answer correct to 3 decimal places.

..... [2]

17 Jamila makes this sequence of patterns using white counters and black counters.



(a) Complete these sentences.

The first one has been done for you.

The number of white counters in pattern 4 is 15

The number of white counters in pattern 5 is

The number of white counters in pattern 100 is

[2]

(b) Write an expression, in terms of n , for the **total** number of counters in pattern n .

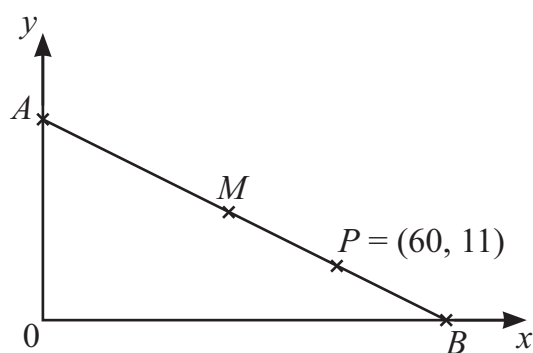
..... [2]

18 Tick (✓) to show if each of the calculations is equivalent to 37×10^{-3} or not.

Calculation	Equivalent to 37×10^{-3}	Not equivalent to 37×10^{-3}
3.7×0.01	☐	☐
3.7×10^{-2}	☐	☐
3.7×10^{-4}	☐	☐
$37 \div 10^3$	☐	☐

[2]

19 Point A lies on the y -axis and point B lies on the x -axis.



NOT TO
SCALE

M is the midpoint of AB .

P is the midpoint of MB .

Find the coordinates of point A and the coordinates of point B .

$A = (\dots\dots\dots, \dots\dots\dots)$

$B = (\dots\dots\dots, \dots\dots\dots)$

[2]

- 20** x is an integer and $1 < \sqrt[3]{x} < 2$

Complete these sentences about x .

One possible value of x is

There is a total of possible values of x .

[2]

- 21** Point P lies on the line $y = 5 - 2x$

The x -coordinate of P is a negative integer.

The y -coordinate of P is a prime number.

Find a possible pair of coordinates for point P .

$P = (\dots\dots\dots, \dots\dots\dots)$ [2]

22 Work out.

$$\frac{8}{9} + 1\frac{1}{3} \div 4\frac{4}{5}$$

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

..... [4]

23 A square has a side length of x cm.

Mia enlarges this square by increasing each side length of the square by 200%.

(a) The side length of her enlarged square measures kx cm.

Draw a ring around the value of k .

2 3 4 200 300

[1]

(b) Find the percentage increase in the area of the square after enlargement.

..... % [2]

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MATHEMATICS

Paper 2

0862/02

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.

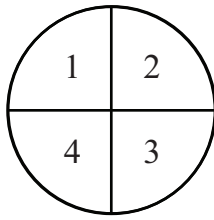
The probability Oliver loses the game is 50%.

The probability Oliver draws the game is 20%.

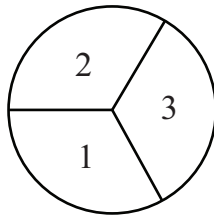
Work out the probability Oliver wins the game.

..... % [1]

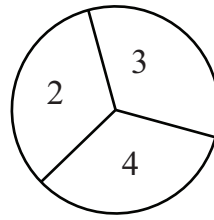
- 5 Anastasia has four fair spinners, A, B, C and D.



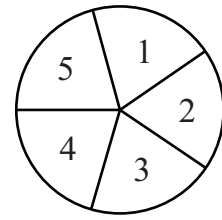
A



B



C



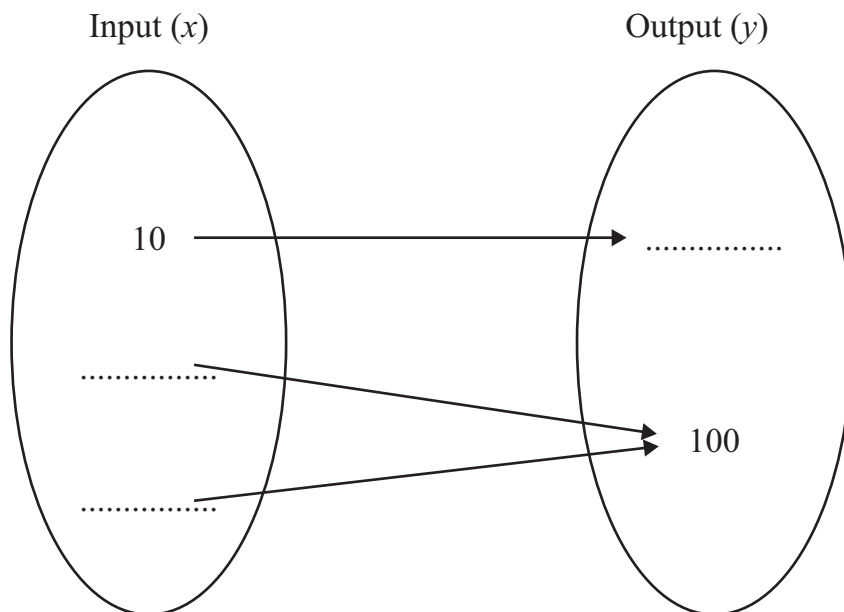
D

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

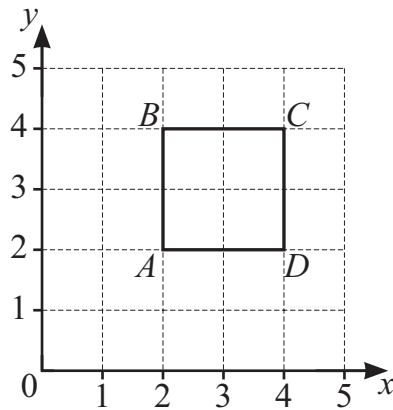
☐

Question B because it asks for qualitative data

☐

[1]

- 9 Yuri enlarges square $ABCD$ by a scale factor of 2



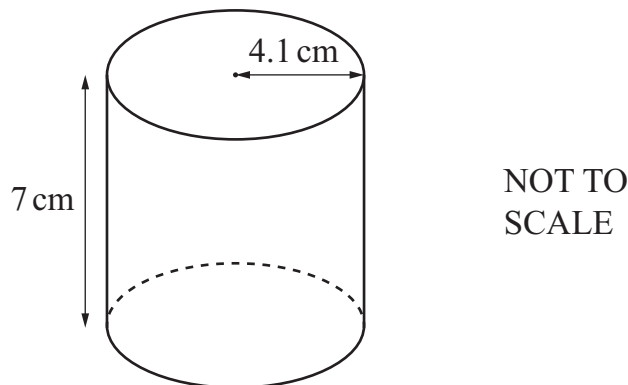
Point A does **not** move when the square is enlarged.

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.

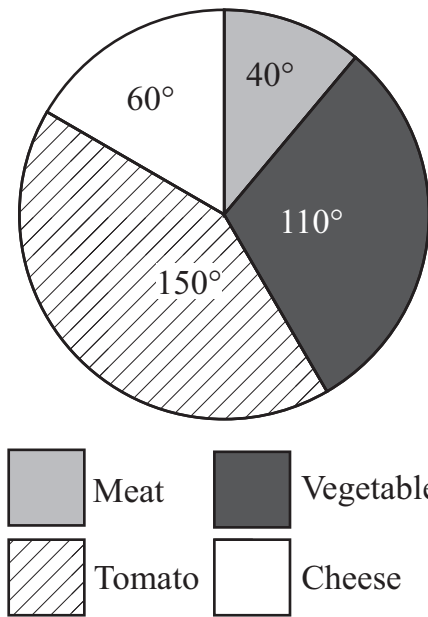


The cylinder is melted and the metal is made into cubes.
The side length of each cube is 2 cm.

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.'

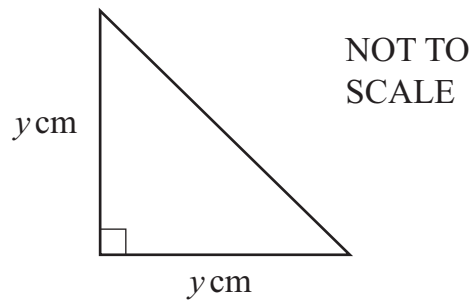
Tick (✓) to show if Mia is correct or not correct.

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.

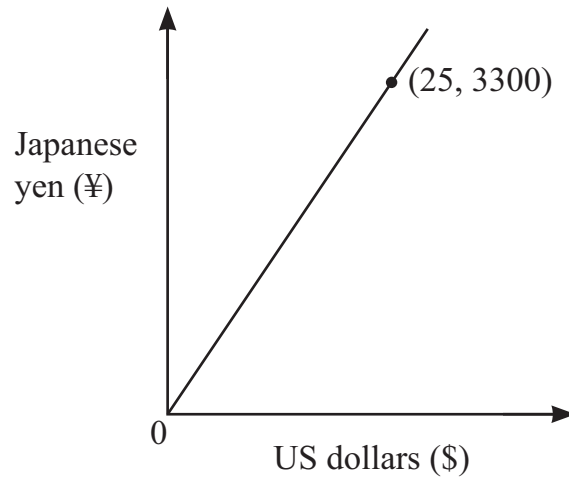
..... $^\circ$ [2]

- 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]

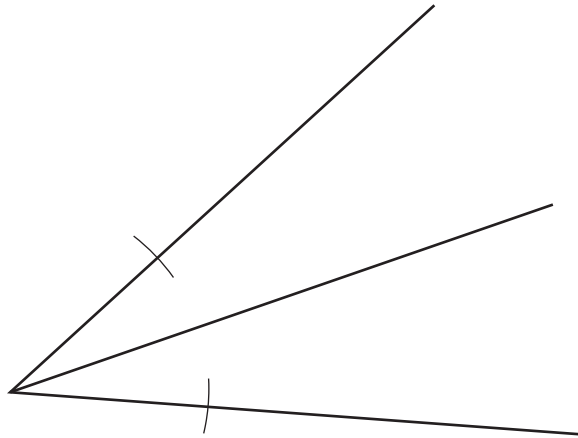
- 16 Triangle ABC is translated by the vector $\begin{pmatrix} 2 \\ 1 \end{pmatrix}$ to make triangle DEF .

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

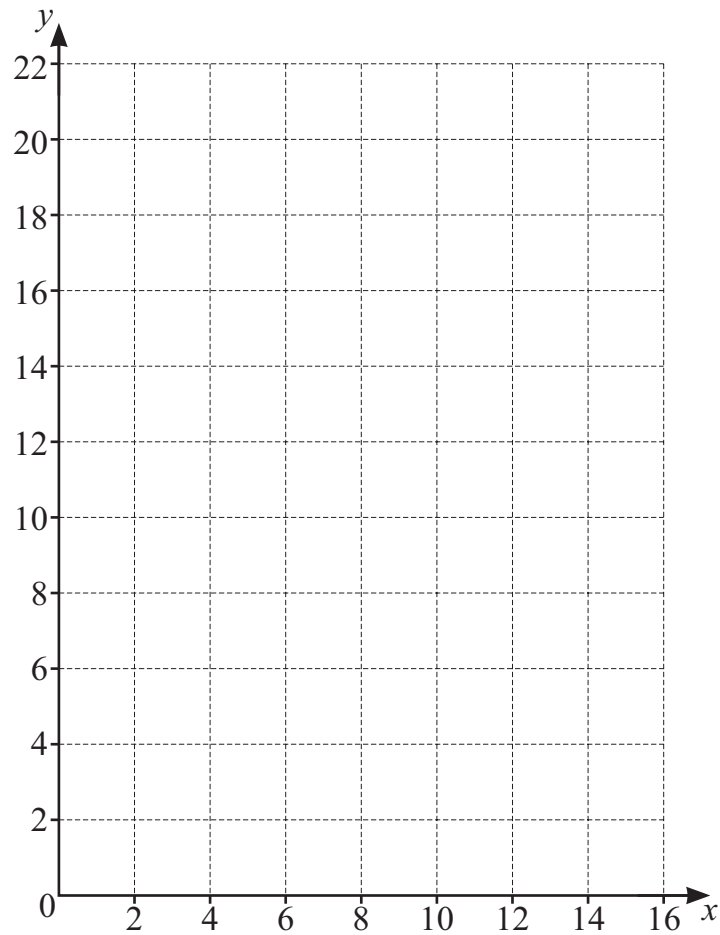
☐

[2]

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

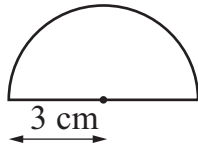
x	0	6	
y			0

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 $^{\circ}\text{C}$ and in $^{\circ}\text{F}$.

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

The approximate formula $f = 2c + 30$ is also used to convert c $^{\circ}\text{C}$ to f $^{\circ}\text{F}$.

Mike says,

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

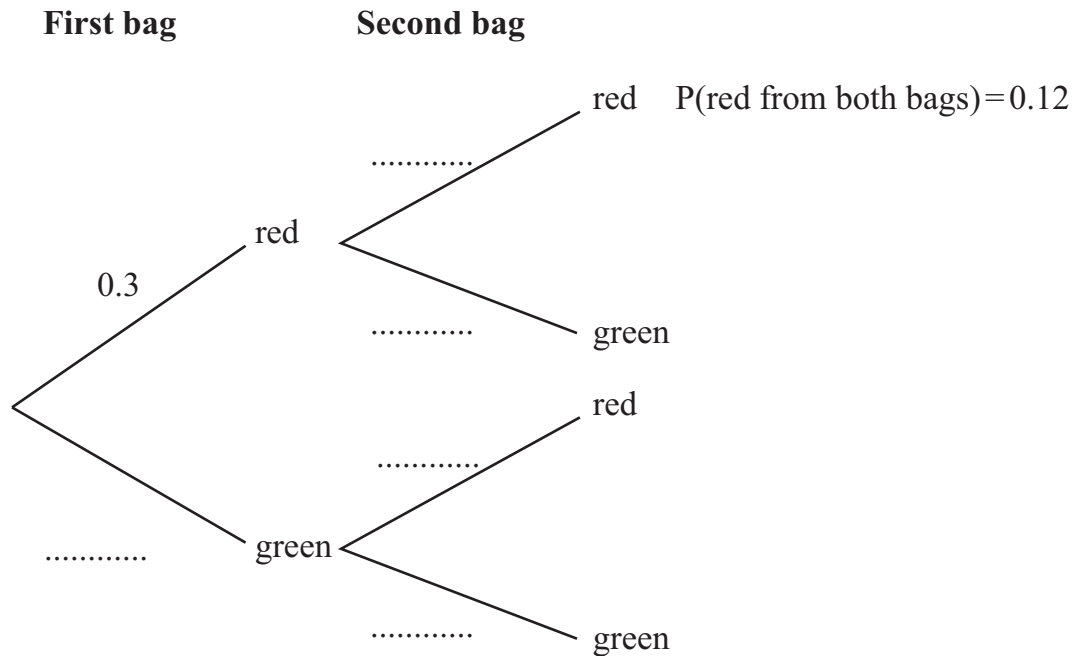
Find the value of c to show that Mike is correct.

$c =$ [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

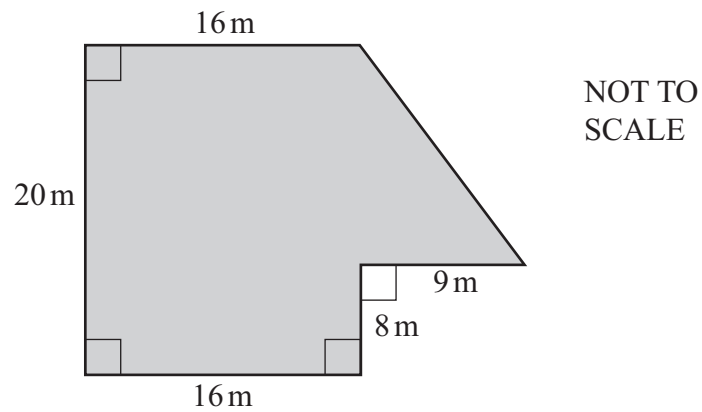
The probability that she takes a red sweet from both bags is 0.12



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

[3]

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



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]

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Cambridge Lower Secondary Checkpoint

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MATHEMATICS

0862/01

Paper 1

October 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.
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- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- You are **not** allowed to use a calculator.

INFORMATION

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This document has **16** pages.

- 1 Safia has this rule.

Start with the number n .
 Then cube the number.
 Then multiply by 7

Write down an algebraic expression for the rule in terms of n .

..... [1]

- 2 Write the correct index in each box.

$$\frac{1}{5^3} = 5^{\boxed{}}$$

$$6^5 \times 6^{-3} = 6^{\boxed{}}$$

[2]

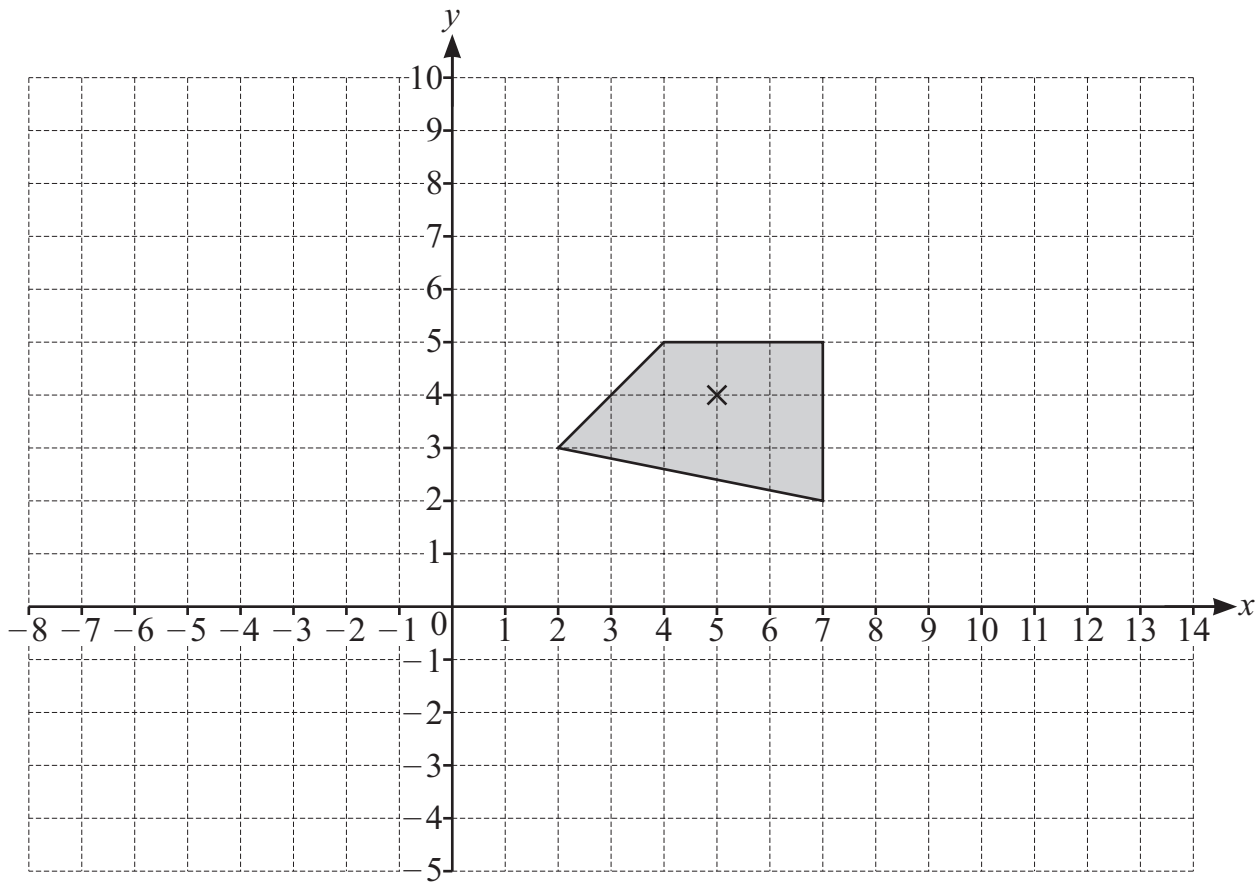
- 3 A polygon has 5 sides.

The polygon has 4 exterior angles each measuring 75° .

Work out the size of the 5th exterior angle of the polygon.

..... $^\circ$ [2]

- 4 The diagram shows a quadrilateral drawn on a coordinate grid.



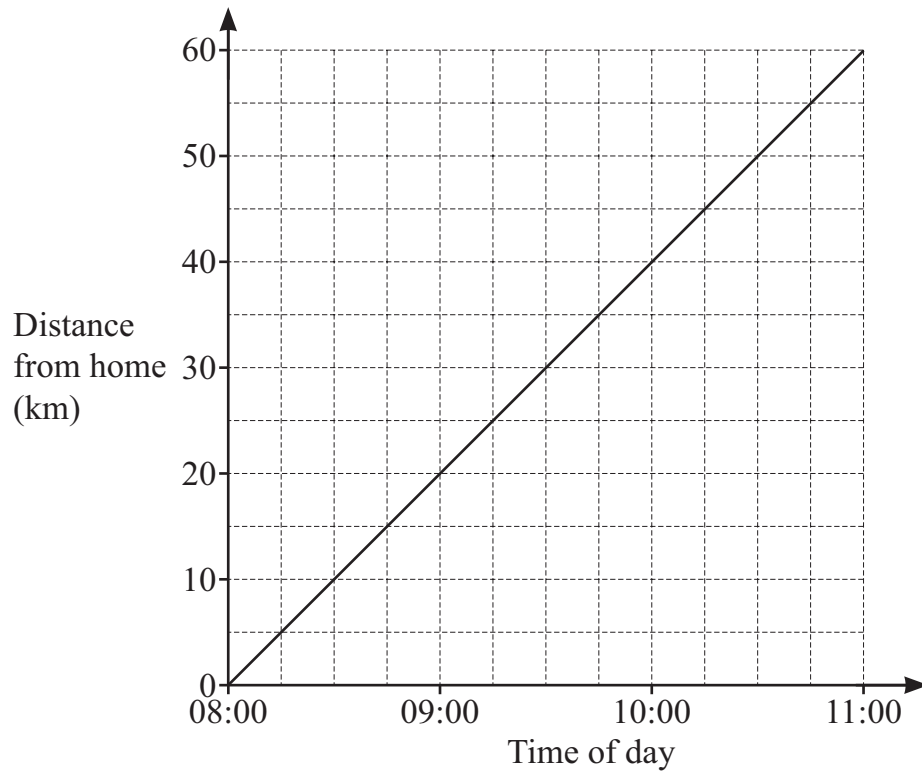
Draw the image of the quadrilateral after an enlargement, scale factor 3, centre (5, 4). [2]

- 5 The first term of a sequence is 3
The term-to-term rule of the sequence is 'square then subtract 5'

Find the 3rd term of this sequence.

..... [2]

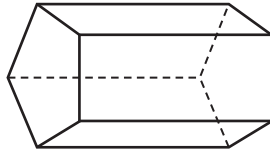
6 Here is a distance–time graph for a journey.



Calculate the speed for this journey.
Give your answer in km/h.

..... km/h [1]

- 7 A prism has a cross-section that is a regular pentagon.

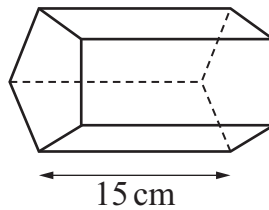


NOT TO
SCALE

- (a) Find the number of planes of symmetry of this prism.

..... [1]

- (b) The prism has a length of 15 cm.



NOT TO
SCALE

The area of the cross-section of the prism is 10 cm^2 .

Calculate the volume of the prism.

..... cm^3 [1]

- 8 Here are some measurements of length.

70 cm

500 nm

0.4 m

Write these measurements in order of size, starting with the smallest.

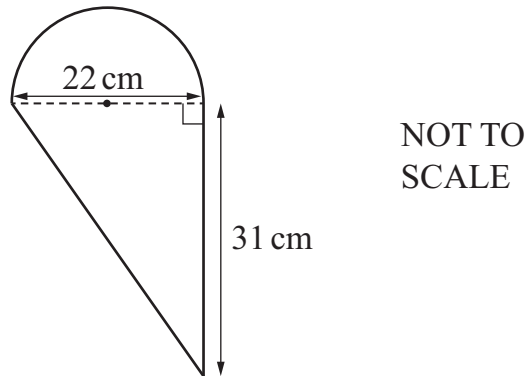
.....
smallest

.....

.....
largest

[1]

- 9 The diagram shows a shape made by joining a semicircle to a right-angled triangle. The diameter of the semicircle is 22 cm. The lengths of the perpendicular sides of the triangle are 22 cm and 31 cm.



Complete the calculation for the total area of the shape.

$$\frac{1}{2} \times 22 \times \boxed{} + \boxed{} \times \pi \times \boxed{}^2 \text{ cm}^2$$

[2]

- 10 Angelique records the resting heart rates for a group of people before and after taking part in a fitness programme.

Resting heart rate is measured in beats per minute (bpm).

This back-to-back stem-and-leaf diagram shows the results.

Resting heart rate before fitness programme						Resting heart rate after fitness programme				
					4	8	9			
			2	1	5	1	5	8	8	8
	5	5	5	4	6	2	4	7	7	8
			8	3	7	5	6	7	8	
	9	7	6	5	8	2	5			
		5	4	3	9	1				

Key: 4 | 6 | 2 represents 64 bpm **before** the fitness programme and 62 bpm **after** the fitness programme.

The tables give information about six values that are missing from Angelique's diagram.

Resting heart rate before fitness programme	Resting heart rate after fitness programme
Five values are missing.	One value is missing.
The minimum value is 49	The range is 45
The modal value is 78	No person has a resting heart rate less than 48
The maximum value is 97	

- (a) Complete the back-to-back stem-and-leaf diagram with the **six** missing values.

[4]

- (b) Angelique says,

‘There is a greater spread of resting heart rates before the fitness programme compared to after the fitness programme.’

Draw a ring around the measure that shows Angelique is correct.

mean

median

mode

range

[1]

- 11 The time Pierre takes to solve a puzzle is 12.7 seconds correct to 3 significant figures.

Write down the lower limit for the time Pierre takes to solve the puzzle.

..... s [1]

- 12 Rajiv substitutes $x = 3$ into the expression $2x^2$ and gets the answer 36

Tick (✓) to show if Rajiv is correct or not correct.

Correct ☐ Not correct ☐

Explain why.

.....

.....

[1]

13 Four students each start to solve a different calculation involving fractions.

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

Student 1's work

$$7 \div \frac{1}{8}$$

$$= 7 \times 8$$

True ☐ False ☐

Student 2's work

$$15 \div \frac{3}{4}$$

$$= \frac{1}{15} \times \frac{4}{3}$$

True ☐ False ☐

Student 3's work

$$27 \times 2\frac{5}{8}$$

$$= 27 \times 2 + 27 \times \frac{5}{8}$$

True ☐ False ☐

Student 4's work

$$3\frac{5}{7} \times 6$$

$$= 3 \times 6 \times \frac{5}{7} \times 6$$

True ☐ False ☐

[2]

14 Work out the value of $\frac{p^5 + 10}{3 + 2p}$ when $p = 2$

..... [2]

- 15 Youssef draws this table to record the length of each leaf in a sample of leaves.

Leaf length (l cm)	Tally	Frequency
$l < 10$		
$10 < l < 20$		
$20 < l < 30$		
$l > 30$		

Youssef has made some mistakes in the class intervals.

Write down class intervals that allow Youssef to record every leaf length.
Two have been done for you.

Leaf length (l cm)
$l < 10$
$l \geq 30$

[1]

16 Work out.

(a) $1 - \frac{7}{10} \div 7$

Give your answer as a fraction in its simplest form.

..... [2]

(b) $1\frac{3}{5} \times 4\frac{1}{8}$

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

..... [3]

17 Solve the simultaneous equations.

$$3x + y = 14$$

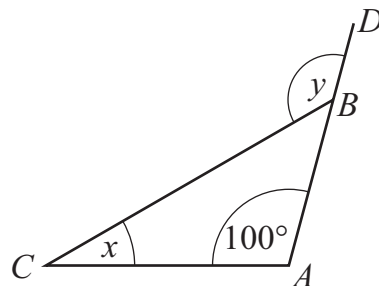
$$5x + 2y = 25$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[3]

18 The diagram shows a triangle ABC .
 ABD is a straight line.



NOT TO
SCALE

Angle x is acute and angle y is obtuse.

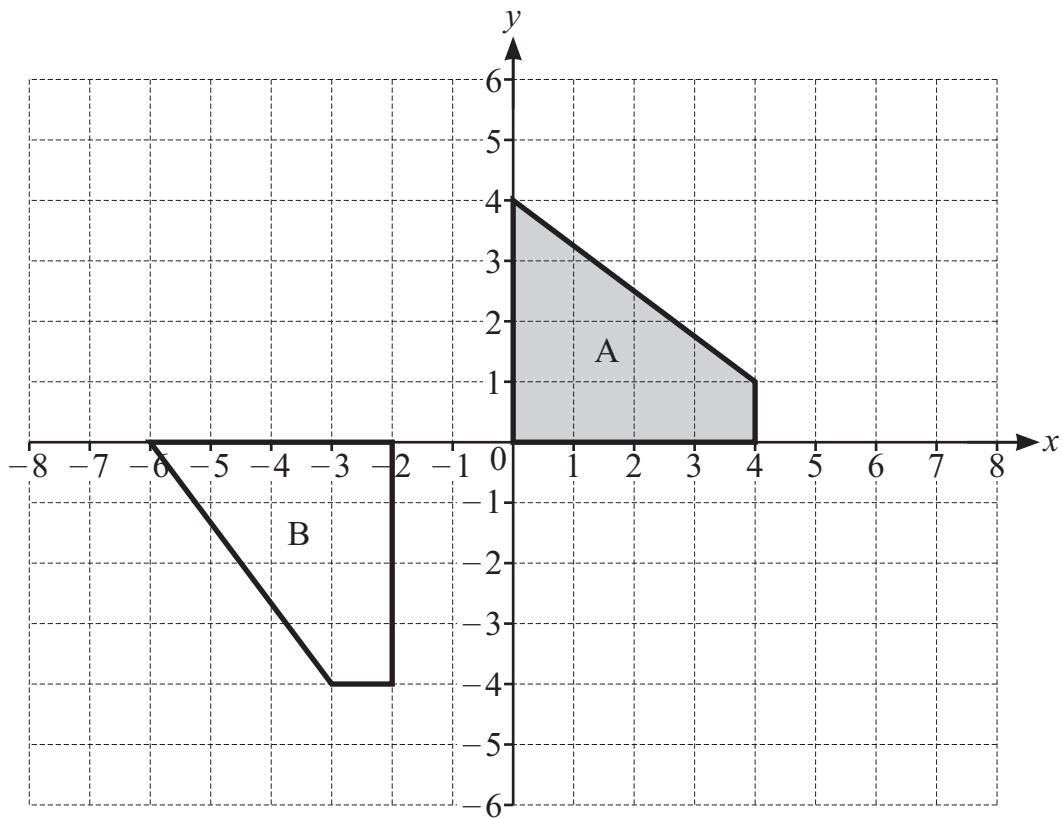
Find **one possible** pair of values for angle x and angle y .

$$x = \dots\dots\dots^\circ$$

$$y = \dots\dots\dots^\circ$$

[1]

19 The diagram shows shape A and shape B on a coordinate grid.



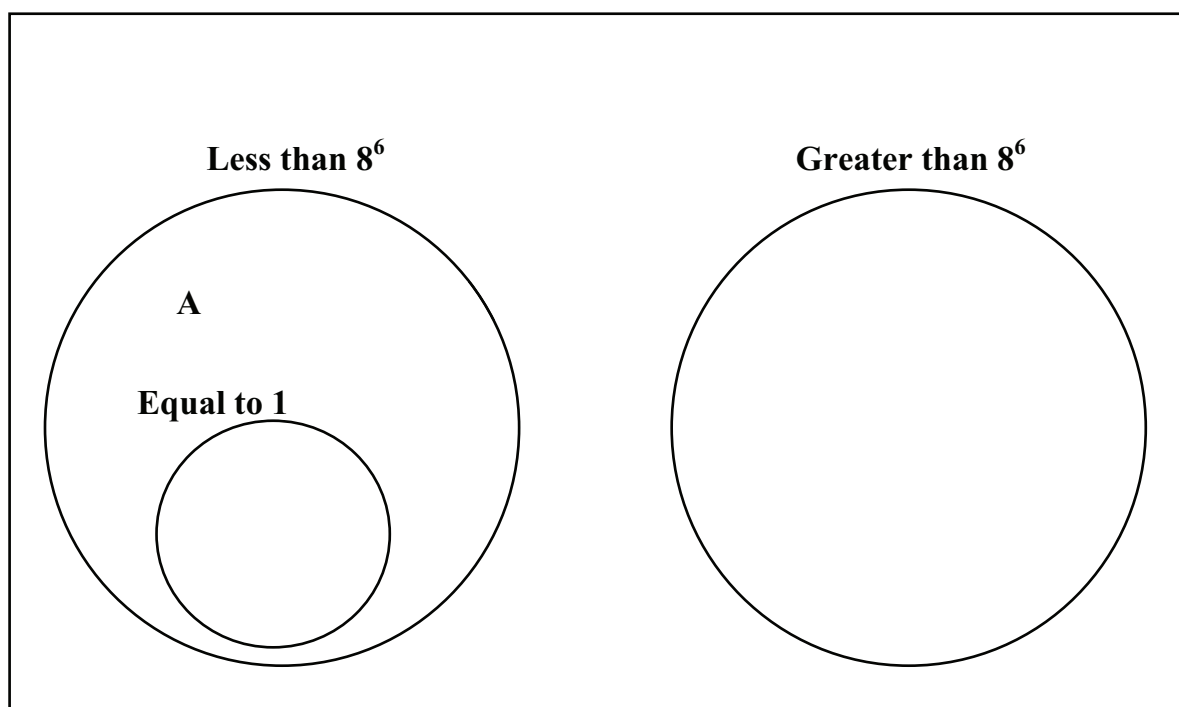
Shape A is transformed onto shape B by a combination of **two** single transformations.
The first transformation is a rotation of 90° clockwise about (0, 0).

Describe fully the **second** transformation.

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

- 20 Write the letter for each calculation in the correct place on the Venn diagram.
One has been done for you.

A $8^2 \times 8^2$	B $8^2 \times 8^3$	C $8^{15} \div 8^5$	D 8^0	E $8 \times 8^5 \times 8$	F $(8^2)^3$
-----------------------	-----------------------	------------------------	------------	------------------------------	----------------



[2]

- 21 Jamila writes these rules about fractions and their decimal equivalents.

Tick (✓) to show if each of Jamila's rules is true or false.

	True	False
Fractions with an even denominator will always be equivalent to a terminating decimal.	☐	☐
Fractions with a denominator which is a multiple of 9 will always be equivalent to a recurring decimal.	☐	☐

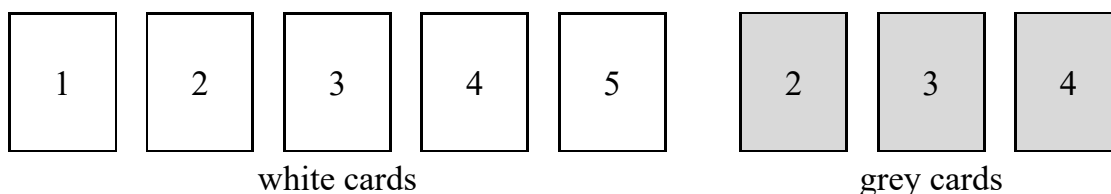
[1]

- 22 (a)** Naomi has a bag containing 5 counters, each with a different **number** written on it. She also has a bag containing 10 counters, each with a different **letter** written on it. Naomi picks one counter at random from each bag. One possible outcome is 3F.

Find the total number of possible outcomes.

..... [1]

- (b)** Naomi has these 5 white cards and these 3 grey cards.



Naomi picks one white card at random and one grey card at random.

Calculate the probability that both cards show a number greater than 3

..... [2]

23 It is given that

$$0.71 \times 10^n = 71 \quad \text{and} \quad 2.3 \times 10^p = 0.00023$$

Find the value of $0.067 \div 10^{n+p}$

..... [3]

24 Here is an algebraic statement.

$$(x + 3)^2 + c = (x - 3)(x + 5) + 4x$$

Find the value of c .

$c =$ [3]

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MATHEMATICS

0862/02

Paper 2

October 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 The n th term of a sequence is n^3 .

Find the value of the 5th term of this sequence.

..... [1]

- 2 Draw a ring around the number that is 0.058 written in standard form.

5.8×10^2

0.58×10^{-1}

5.8×10^{-2}

58×10^{-3}

[1]

- 3 It will take 3 teachers 4 hours to mark some exam papers.

Find how many teachers are needed to mark these exam papers in 2 hours.

..... [1]

- 4 Calculate the size of the interior angle of a regular octagon.

.....[°] [2]

5 Calculate.

$$15.66 - \left(\frac{1}{4} + 3.15 \right)^2$$

..... [1]

6 (a) Write down the equations of two **different** lines that are parallel to the line $y = 5x + 2$

$y =$

$y =$

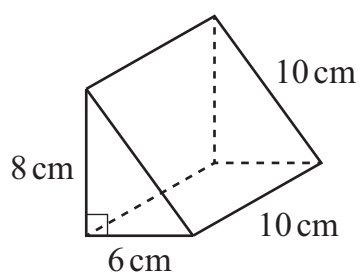
[1]

(b) A line has the equation $11x - y = 3$

Find the y -intercept of this line.

..... [1]

- 7 The diagram shows a triangular prism.



NOT TO
SCALE

Tick (✓) to show if each of these statements about the prism is true or false.

The largest face has an area of 100 cm^2 .

True

☐

False

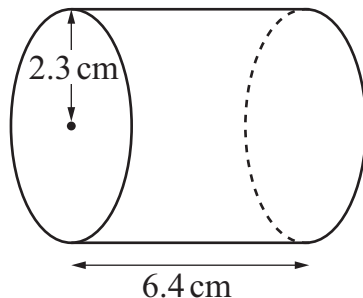
☐

The total area of the two triangular faces is 96 cm^2 .

☐
☐

[1]

- 8 The diagram shows a cylinder with a radius of 2.3 cm and length of 6.4 cm.

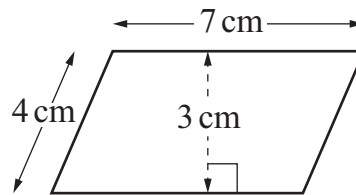
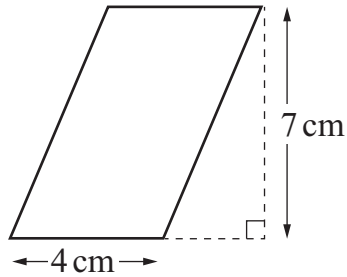
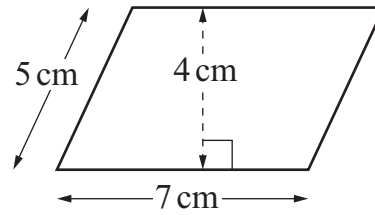
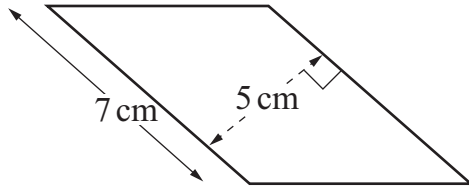


NOT TO
SCALE

Calculate the volume of the cylinder.
Give your answer correct to 3 significant figures.

..... cm^3 [3]

9 Here are four parallelograms.



NOT TO
SCALE

Draw rings around the **two** parallelograms that have the same area.

[1]

- 10 The cost of hiring a car is a \$40 fixed charge and an additional charge of \$12 per day. Mike writes a function using C to represent the total cost, in dollars, to hire the car for d days.

Tick (✓) to show if each of these statements is true or false.

The total cost to hire the car for 7 days is \$124

True

☐

False

☐

The correct function is $C = 40d + 12$

☐
☐

[1]

- 11 The table gives information about the masses of 20 sheep.

Mass (m kg)	Frequency (f)	Midpoint	Midpoint $\times f$
$40 \leq m < 60$	4		
$60 \leq m < 80$	6		
$80 \leq m < 100$	8		
$100 \leq m < 120$	2		
	Total = 20		Total =

- (a) Calculate an estimate of the mean mass of these sheep.
You may use the table to help you.

..... kg [3]

- (b) Give a reason why it is only possible to calculate an **estimate** of the mean mass of these sheep.

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

12 Simplify these algebraic fractions.

$$\frac{8x^2}{x}$$

.....

$$\frac{12y+8}{4}$$

..... [2]

13 Solve these inequalities.

$$4 < x - 1 < 9$$

.....

$$3n + 12 \leq 18$$

..... [3]

- 14** A bag contains sweets of four different colours.

Here are some of the probabilities of picking a sweet of each colour.

	Red	Yellow	Pink	Green
Probability	0.25	0.1		

The probability of picking a yellow sweet or a pink sweet is 0.4

Complete the table.

[2]

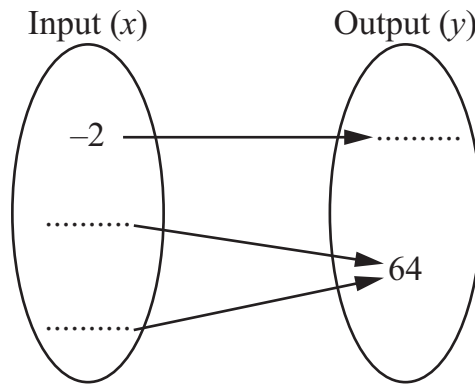
- 15** A bike has a value of \$8000

The bike decreases in value by 5% each year.

Calculate the value of the bike at the end of 3 years.

\$ [2]

16 Here is a mapping diagram for the function $y = (1 + x)^2$



Complete the mapping diagram with three **different** values.

[3]

17 Chen has a box containing coloured pencils in the ratio

blue	:	red	:	green
11	:	8	:	3

There are more than 70 pencils in the box.

Find the smallest possible number of **red** pencils in the box.

[2]

18 The scale drawing shows the positions of town A and town B.



Town C is on a bearing of 040° from town A and on a bearing of 305° from town B.

Mark the position of town C on the diagram.

[2]

19 Here is a formula.

$$t = \sqrt{p+3}$$

Draw a ring around the correct rearrangement of the formula.

$$p = \sqrt{t+3}$$

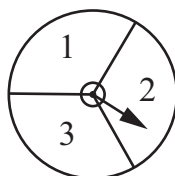
$$p = \sqrt{t} - 3$$

$$p = t^2 - 3$$

$$p = (t-3)^2$$

[1]

20 Lily spins this fair spinner once every day for 135 days.



If she spins a 1 she saves \$10 of her earnings for that day.

If she spins a 2 she saves \$20 of her earnings for that day.

If she spins a 3 she saves \$30 of her earnings for that day.

Calculate the total amount of money Lily should expect to save over the 135 days.

\$ [2]

- 21** Triangle PQR has vertices $P = (3, 5)$, $Q = (3, 2)$ and $R = (5, 2)$.
Triangle PQR is translated to triangle $P'Q'R'$.

(a) Find the coordinates of R' when $P' = (4, 5)$ and $Q' = (4, 2)$.

$$R' = (\dots\dots\dots , \dots\dots\dots) \quad [1]$$

(b) Find the coordinates of R' when $P' = (1, 10)$ and $Q' = (1, 7)$.

$$R' = (\dots\dots\dots , \dots\dots\dots) \quad [1]$$

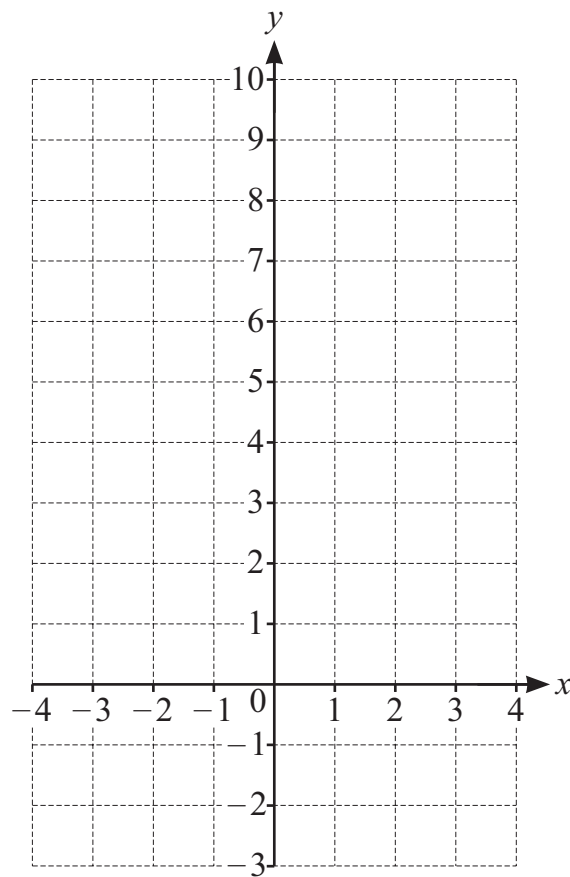
- 22** A rectangle has an area of 7.5 cm^2 .
When the rectangle is enlarged the image has an area of 270 cm^2 .

Calculate the value of the scale factor of the enlargement.

$$\dots\dots\dots [1]$$

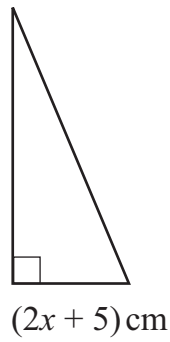
- 23 By completing the table of values, draw the graph of $y = x^2 - 1$ on the grid for values of x between -3 and 3

x	-3	-2	-1	0	1	2	3
y	8		0	-1	0		



[4]

- 24 The diagram shows a right-angled triangle with a base length of $(2x + 5)\text{cm}$.



NOT TO
SCALE

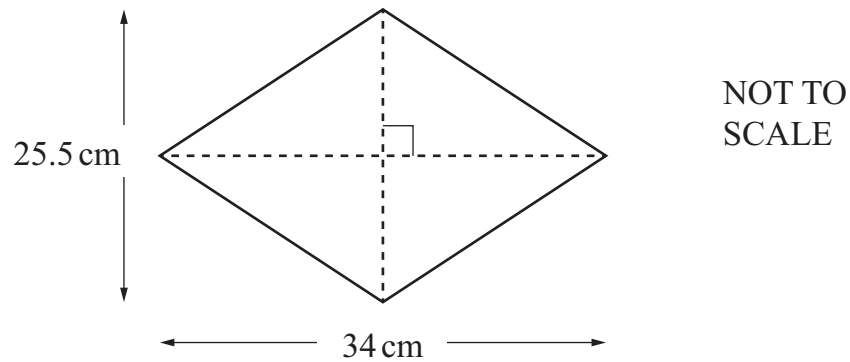
The area of this right-angled triangle is $(4x^2 + 10x)\text{cm}^2$.

Mia thinks that the perpendicular height of the triangle is kx , where k is a whole number.

Show that Mia is correct by finding the value of k .

$k = \dots\dots\dots$ [2]

- 25** The diagram shows a cake board in the shape of a rhombus.
The diagonals of the rhombus are of length 25.5 cm and 34 cm.



Eva wraps ribbon around the perimeter of the cake board.
The ribbon does not overlap.
Ribbon costs 60 cents per **metre**.

Calculate the total cost of the ribbon Eva uses.

..... cents [4]

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Cambridge Lower Secondary Checkpoint

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MATHEMATICS

0862/01

Paper 1

April 2025

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 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 [].

This document has **16** pages.

- 1 The table gives some information about sequence A and sequence B .

	First five terms	Next term	n th term
Sequence A	1, 4, 9, 16, 25	36	n^2
Sequence B	2, 5, 10, 17, 26		

- (a) Complete the table with the next term in sequence B .

[1]

- (b) Complete the table with the n th term of sequence B .

[1]

- 2 Tick (✓) to show if each piece of data is quantitative or qualitative.

	Quantitative	Qualitative
The name of the country where a person is born.	☐	☐
The number of books a person owns.	☐	☐

[1]

- 3 Draw a ring around the most appropriate unit for measuring the volume of water in a raindrop.

microlitre

tonne

milligram

micrometre

[1]

- 4 Mia buys some sweets.

Toffees cost 9 cents each.

Chocolates cost 11 cents each.

Mia buys t toffees and c chocolates.

The total cost of the sweets she buys is 129 cents.

Draw a ring around the equation that represents this information.

$$129 = (9 - t) + (11 - c)$$

$$129 = 9t + 11c$$

$$129 = \frac{9}{t} + \frac{11}{c}$$

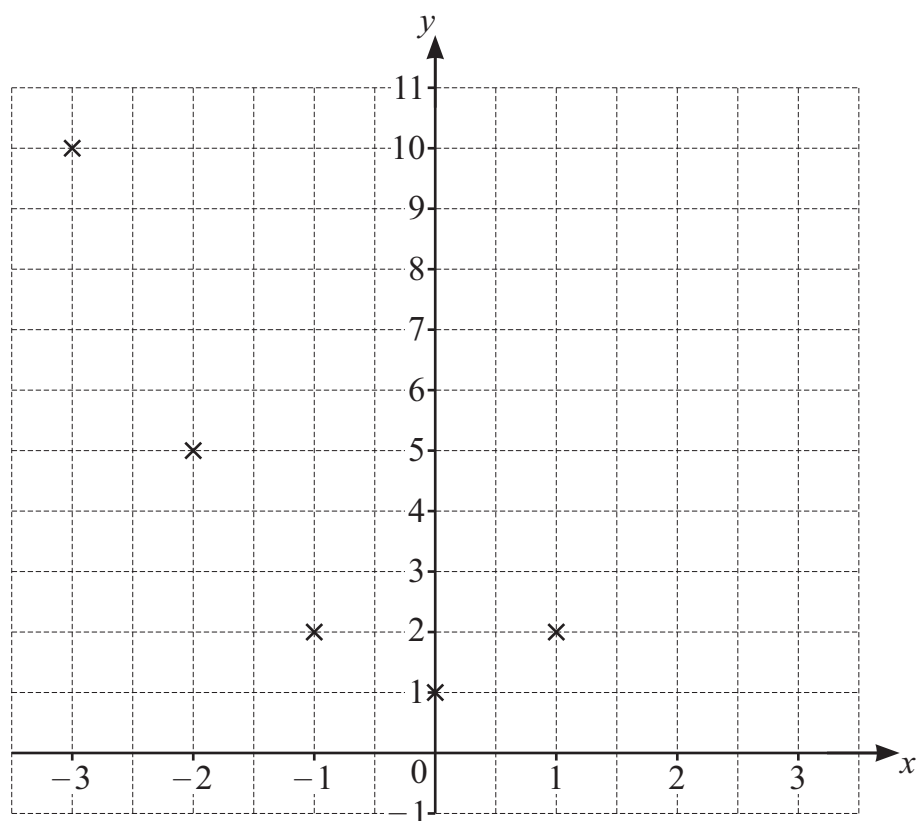
$$129 = t + 9 + c + 11$$

[1]

- 5 Make m the subject of the formula $h = m^3$

$$m = \dots\dots\dots [1]$$

6 Chen starts to draw the graph of $y = x^2 + 1$



Complete the graph of $y = x^2 + 1$ 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	10	5	2	1	2		

[2]

- 7 Safia draws triangle P on a coordinate grid.
 She rotates triangle P by 90° anticlockwise about centre $(0, -3)$ to make triangle Q.
 She then translates triangle Q by $\begin{pmatrix} 3 \\ 7 \end{pmatrix}$ to make triangle R.

Tick (✓) to show if each pair of triangles is congruent, not congruent or you cannot tell.

	Congruent	Not congruent	Cannot tell
Triangle P and triangle Q	☐	☐	☐
Triangle P and triangle R	☐	☐	☐

[1]

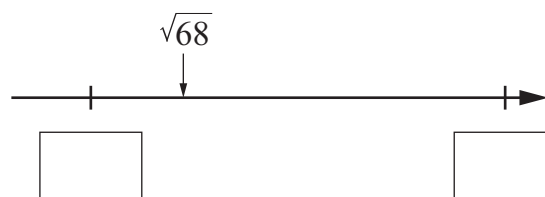
- 8 Work out.

$$\left(1 + \frac{1}{5}\right) \div \left(2 - \frac{1}{2}\right)$$

Give your answer as a fraction in its simplest form.

..... [3]

- 9 The diagram shows a number line.



Complete the boxes with the two closest **whole** numbers to $\sqrt{68}$

[1]

- 10** Lily wants to find the average height of the 1000 students in her school. The students in her school are aged between 4 and 18 years old. Here is her plan to collect a sample of students.

Choose one class of 18-year-old students in her school.
Choose 5 students randomly from this class.

Give **two** different reasons why her sampling method is biased.

1

.....

2

.....

[2]

- 11** Here is an equation.

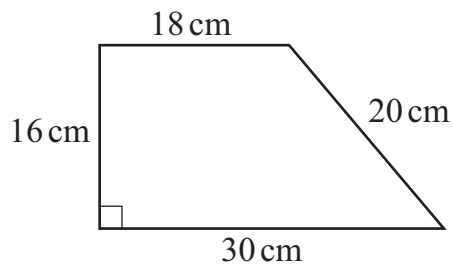
$$a^b = 16$$

Complete the table with different pairs of values for a and b .

First pair	$a =$ and $b =$
Second pair	$a =$ and $b =$
Third pair	$a =$ and $b =$

[3]

12 Here is a trapezium.



NOT TO
SCALE

Some students try to calculate the area of the trapezium in different ways.

(a) For each student, tick (✓) to show if their calculation is correct or **not** correct.

First student	$16 + 18 + 20 + 30$	Correct ☐	Not correct ☐
Second student	$16 \times 18 + \frac{1}{2} \times 12 \times 16$	Correct ☐	Not correct ☐

[1]

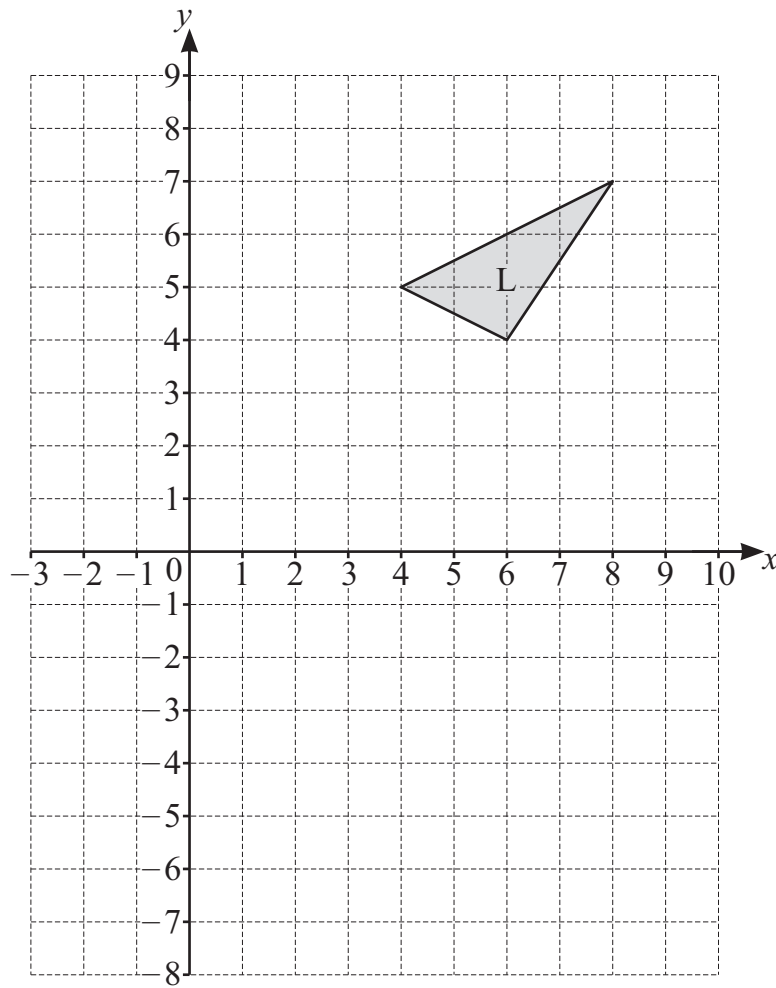
(b) A third student tries to calculate the area of the trapezium.
Here is their calculation.

$$\frac{1}{2} \times (18 + 30) \times 20$$

Draw a ring around the number that is **not** correct in the third student's calculation.

[1]

13 The diagram shows triangle L drawn on a grid.



Triangle L is reflected in the line $y = 2$ to make triangle M.

Triangle M is then translated by $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$ to give triangle N.

- (a) Draw the position of **triangle N** on the grid.
You do **not** need to rub out your triangle M.

[2]

- (b) Complete the sentence with the correct words from the box.

a translation

a reflection

a rotation

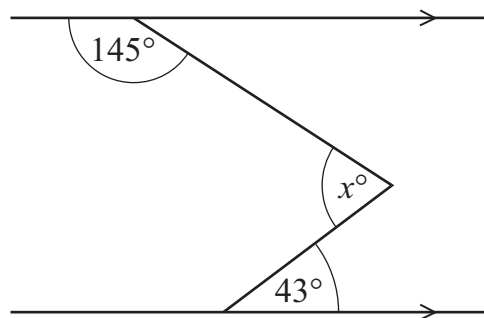
an enlargement

The **single** transformation that maps triangle L onto triangle N

is

[1]

- 14 The diagram shows two parallel lines and two other straight lines.



NOT TO
SCALE

Find the value of x .

$x =$ [2]

- 15 Work out the value of $\left(\frac{55 - 8x}{x}\right)^4$ when $x = 5$

..... [2]

16 Solve the simultaneous equations.

$$\begin{aligned}x - 3y &= 21 \\ 2x + y &= 7\end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[3]

17 Work out.

$$6^2 + \left(5.3 - \frac{3}{10}\right)^2$$

$$\dots\dots\dots [2]$$

18 Naomi thinks of two integers.

n is a **negative** integer.

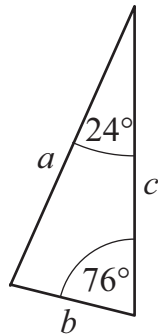
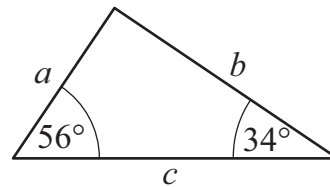
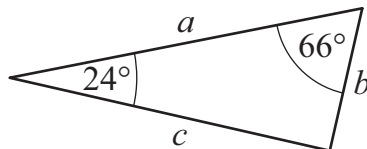
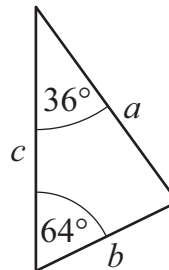
p is a **positive** integer.

For Naomi's integers $n^2 > p^2$

Write down a possible value of n and a possible value of p for Naomi's integers.

$n =$ and $p =$ [1]

19 Tick (✓) to show the triangle where $a^2 + b^2 = c^2$


☐

☐

☐

☐

[1]

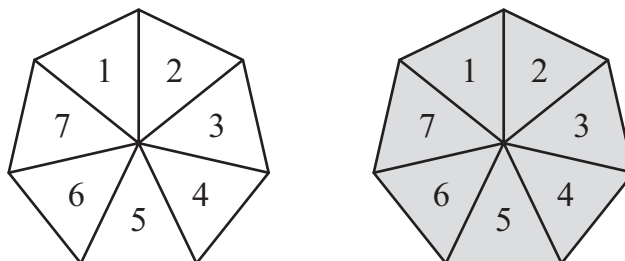
- 20** Oliver has two boxes of pencils.
The first box contains $(5x + 11)$ pencils.
The second box contains $(7x - 3)$ pencils.
The number of pencils in each box is the same.

Oliver says, 'There are more than 40 pencils in the first box.'

Show that Oliver is correct.

[3]

- 21** Yuri has two fair 7-sided spinners each numbered 1 to 7. One spinner is white and the other spinner is grey.



- (a)** Yuri spins the white spinner once and the grey spinner once. Here are two events, A and B.

Event A Spinning an even number on the white spinner.

Event B Spinning a 3 on the grey spinner.

Draw a ring around the best word or words to describe the pair of events, A and B.

dependent mutually exclusive independent complementary

[1]

- (b)** Yuri spins the white spinner 140 times.

Calculate how many times Yuri should expect to spin a number less than 3

..... [1]

- (c)** Yuri spins the white spinner once and the grey spinner once.

Calculate the probability that both spinners show an odd number.

..... [2]

22 Rajiv says,



All fractions with an odd denominator will be equivalent to a recurring decimal, for example $\frac{2}{9} = 0.\dot{2}$

Find a fraction with an odd denominator to show that Rajiv is **not** correct.

..... [1]

23 Find the value of x and the value of y in these equations.

$$(19^3)^5 \times 19^{-4} = 19^x$$

$x =$

$$7 \times 7^y \div 7^{-4} = 7^{13}$$

$y =$

[2]

- 24 A rectangle has an area of 2 m^2 .
When the rectangle is enlarged the image has an area of 72 m^2 .
Find the value of the scale factor of the enlargement.

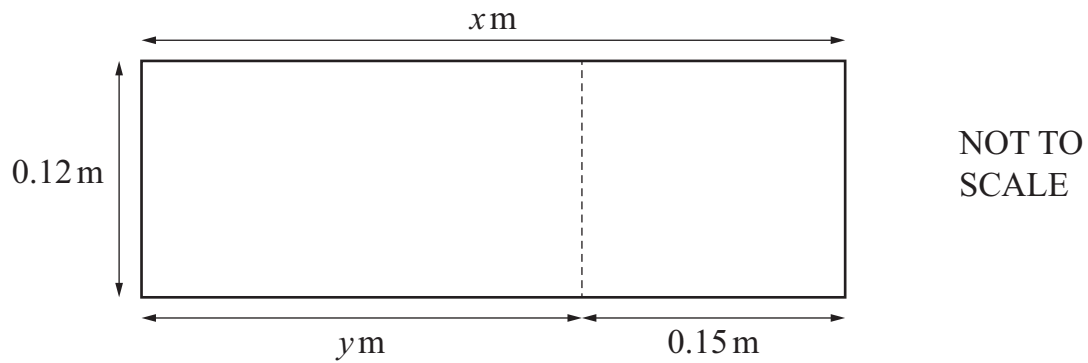
..... [1]

- 25 Simplify.

$$\frac{6tw + 9t}{3t}$$

..... [2]

26 The diagram shows a rectangle.



The total area of the rectangle is 0.084 m^2 .

Work out the value of x and the value of y .

$x =$
 $y =$

[3]

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MATHEMATICS

0862/02

Paper 2

April 2025

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 On Wednesday Carlos takes 16 minutes to cycle home from work.
On Thursday he does the same journey at half the speed.

Work out how many minutes his journey takes on Thursday.

..... mins [1]

- 2 Calculate $\sqrt{7} \times \sqrt{28}$

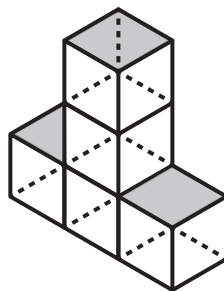
..... [1]

- 3 Jamila thinks of a number n .
She adds 7 to the number.
Then she squares the result.

Write down an algebraic expression, in terms of n , for the number Jamila finishes with.

..... [1]

- 4 Here is a prism made from five identical cubes.



Draw a ring around the number of planes of symmetry this prism has.

0

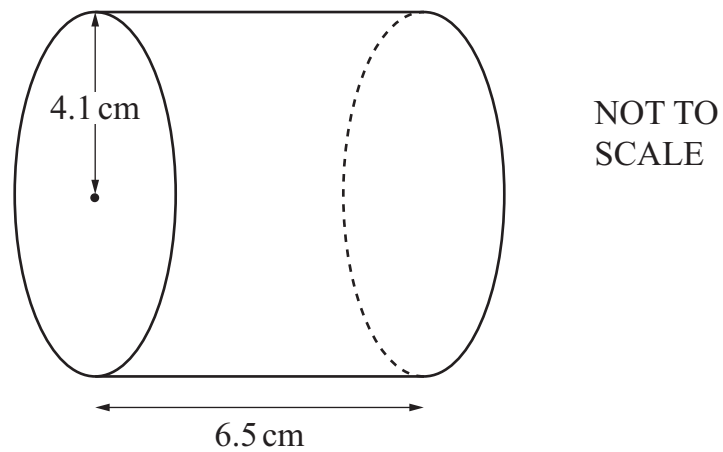
1

2

3

[1]

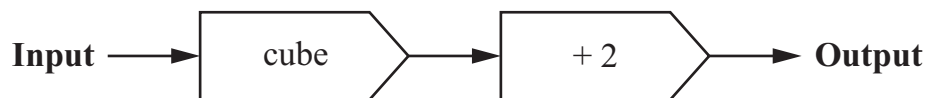
- 5 The diagram shows a cylinder with a radius of 4.1 cm and a length of 6.5 cm.



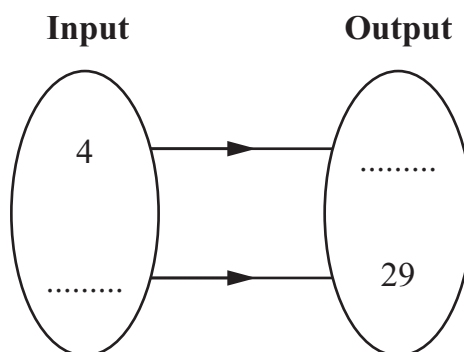
Calculate the volume of the cylinder.

..... cm^3 [2]

- 6 Here is a function machine.

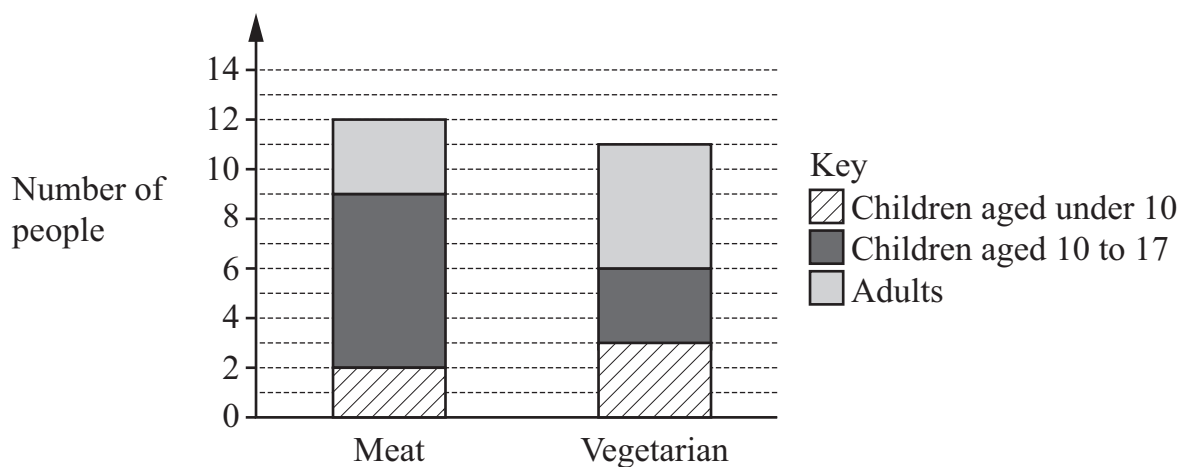


Complete the mapping diagram for this function.



[2]

- 7 The compound bar chart shows information about the favourite types of pizza chosen by a group of children and adults.
Each person in the group chooses either meat or vegetarian.



Mike draws this table to show the data from the compound bar chart.

	Meat	Vegetarian
Children aged under 10	2	3
Children aged 10 to 17	9	6
Adults	12	11

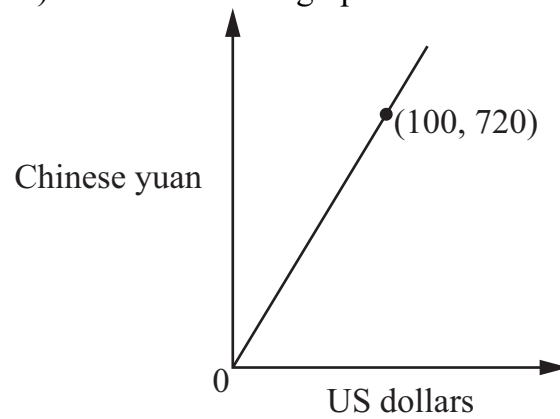
Mike has made some mistakes in his table.

Complete the table correctly.

	Meat	Vegetarian
Children aged under 10	2	3
Children aged 10 to 17		
Adults		

[2]

- 8 Here is a graph showing the exchange rate between US dollars and Chinese yuan.
The coordinate (100, 720) is marked on the graph.



Calculate the exchange rate.
Give your answer in yuan per dollar.

..... yuan per dollar [1]

- 9 A line has the equation $4y = 5x + 16$

Find the coordinates of the y -intercept of this line.

(..... ,) [1]

- 10 Seven students each solve two maths questions.

This back-to-back stem-and-leaf diagram shows the time taken for each student to solve question 2

Question 1						Question 2				
					3	6	6			
					4	1	3			
					5	0	2	9		

Key: 4 | 3 | 6 represents 34 seconds to solve question 1
and 36 seconds to solve question 2

Here are the times, in seconds, it takes the seven students to solve question 1

34 50 41 51 47 46 41

- (a) Complete the back-to-back stem-and-leaf diagram.

[2]

- (b) Complete the table.

	Question 1	Question 2
Median	46	
Mode	41	
Range	17	23

[2]

(c) Eva says,

‘The times students take to solve question 1 are less consistent than the times students take to solve question 2’

Complete the sentence using one word from each box to explain how you know Eva is **not** correct.

median	mode	range
--------	------	-------

higher	lower
--------	-------

The for question 1 is
than for question 2

[1]

11 A regular polygon has 10 sides.

Calculate one interior angle of the polygon.

..... ° [2]

- 12 (a)** A number, n , rounded correct to the nearest 10 is 380

Complete the inequality to show the bounds for n .

$$\text{.....} \leq n < 385$$

[1]

- (b)** The mass of a baby is 3.62 kg correct to 2 decimal places.

Find the upper bound of the mass of the baby.

$$\text{..... kg} \quad [1]$$

- 13** In a sports club the ratio of adults to children is 11 : 6
There are 750 **more** adults than children in the sports club.

Calculate the number of children in the sports club.

$$\text{.....} \quad [2]$$

- 14 M is the midpoint of the line AB .
 M is the point $(5, 8)$.

Pierre writes some statements about possible coordinates of A and B .

Tick (✓) to show if each of these statements could be correct or is **not** correct.

	Could be correct	Not correct
A is the point $(-2, 8)$ and B is the point $(12, 8)$.	☐	☐
A is the point $(-2, 4)$ and B is the point $(8, 12)$.	☐	☐

[1]

- 15 A painting costs \$17 400
 The painting increases in value by 4% each year.
 The calculation to find the value of this painting after 5 years is $17\,400 \times x^5$
 Find the value of x .

$x =$ [1]

- 16 In this question x is always positive.

For each function, tick (✓) to show if the statement is true or false.

Function	Statement	True	False
$y = x + 3$	As x increases y increases		
$v = 5x$	As x increases v increases		
$w = 50 - x$	As x increases w increases		
$z = \frac{x}{5}$	As x increases z increases		

[2]

- 17** Hassan picks a letter at random from a book.

The letters in the book are vowels (A, E, I, O, U) or consonants.

The table shows the probabilities of Hassan picking some of the letters.

	Vowels					Consonants
	A	E	I	O	U	
Probability	0.06		0.07	0.1	0.04	

There are twice as many of the letter **E** in the book as there are of the letter **I**.

Find the probability of Hassan picking a letter from the book that is a **consonant**.

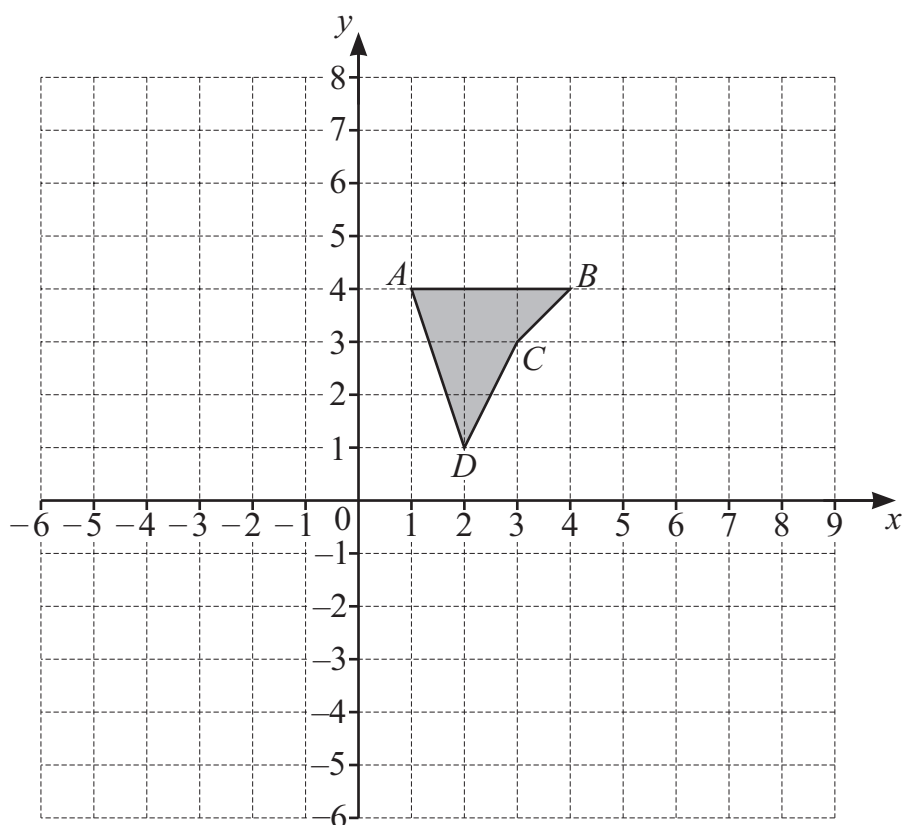
..... [3]

- 18** Solve the inequality.

$$11x > 6x + 32$$

..... [2]

19 The diagram shows shape $ABCD$ on a grid.



$ABCD$ is enlarged by scale factor 2, centre $(5, 7)$ to $A'B'C'D'$.

Complete the table to show the positions of vertices A' , B' , C' and D' .
One has been done for you.

	Positive y -coordinate	Negative y -coordinate
Positive x -coordinate	B'	
Negative x -coordinate		

[2]

- 20 The map shows the positions of a shop, S , and a pond, P .
The scale of the map is 1 centimetre represents 50 metres.



Scale: 1 cm to 50 m



A restaurant, R , is on a bearing of 135° from the shop.
The restaurant is 175 metres from the pond.

Mark the **two** possible positions of the restaurant on the map.

[3]

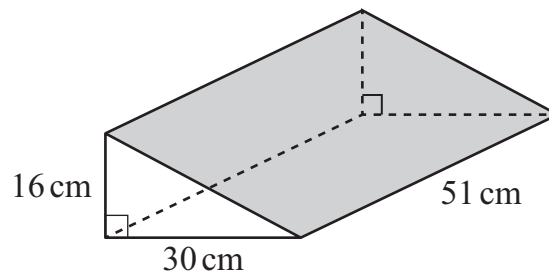
21 Expand and simplify.

$$(x + 3)^2$$

..... [2]

22 The diagram shows a triangular prism.

The cross-section of the prism is a right-angled triangle.



NOT TO
SCALE

Calculate the area of the **shaded** face of the prism.

..... cm^2 [2]

23 Solve.

$$\frac{27}{4x-3} = 5$$

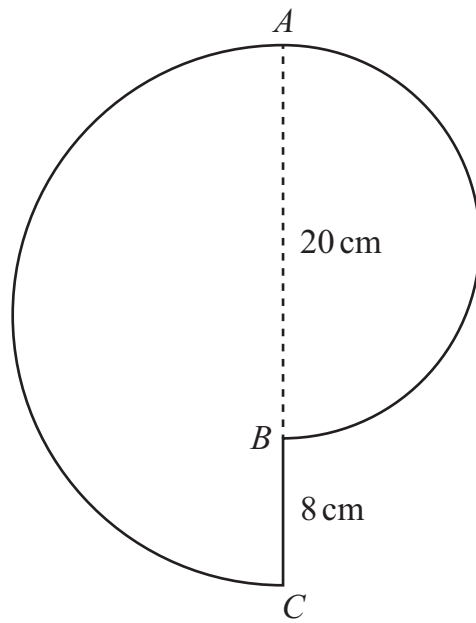
$$x = \dots\dots\dots [3]$$

24 Anastasia thinks of two numbers t and y .
 $(t - y)$ is a third of $(t + y)$.

Write t in terms of y .

$$t = \dots\dots\dots [2]$$

25 Here is a shape made from two semicircles.



NOT TO
SCALE

The larger semicircle has a diameter AC .

The smaller semicircle has a diameter AB .

ABC is a straight line with $AB = 20$ cm and $BC = 8$ cm.

Calculate the **perimeter** of the shape.

Give your answer correct to 1 decimal place.

..... cm [4]

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MATHEMATICS

0862/01

Paper 1

October 2025

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 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 [].

This document has **12** pages.

- 1 Work out.

$$35.8 \times 10^3$$

..... [1]

- 2 Draw a ring around the **two** calculations that will give a positive answer.

$$-5 \times 3$$

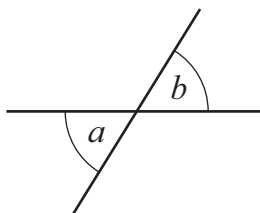
$$(-4)^2$$

$$-4 \times -2$$

$$16 \div -2$$

[1]

- 3 The diagram shows two intersecting lines.



Angelique says, 'Angle a and angle b are corresponding angles.'
Angelique is **not** correct.

Complete the sentence with the correct description of the angles.

Angle a and angle b are angles.

[1]

- 4 Ahmed wants to find out the amount of money students of different ages spend on lunch and which food is the most popular.

Give **one** example of quantitative data he should collect.

..... [1]

- 5 Write the correct numbers in the boxes to complete the calculation.

$$0.84 \div 0.12 = \boxed{} \div 12 = \boxed{}$$

[2]

- 6 Use compasses and a ruler to construct a triangle with all three interior angles of 60° .
The base has been drawn for you.
Do **not** rub out your construction arcs.



[2]

- 7 The cost of hiring a car is a charge of \$50 per day plus a fixed cost of \$80
A car is hired for n days.

Draw a ring around the formula that represents the total cost, \$ C , of hiring this car.

$$C = 50 + 80n$$

$$C = 50n \times 80$$

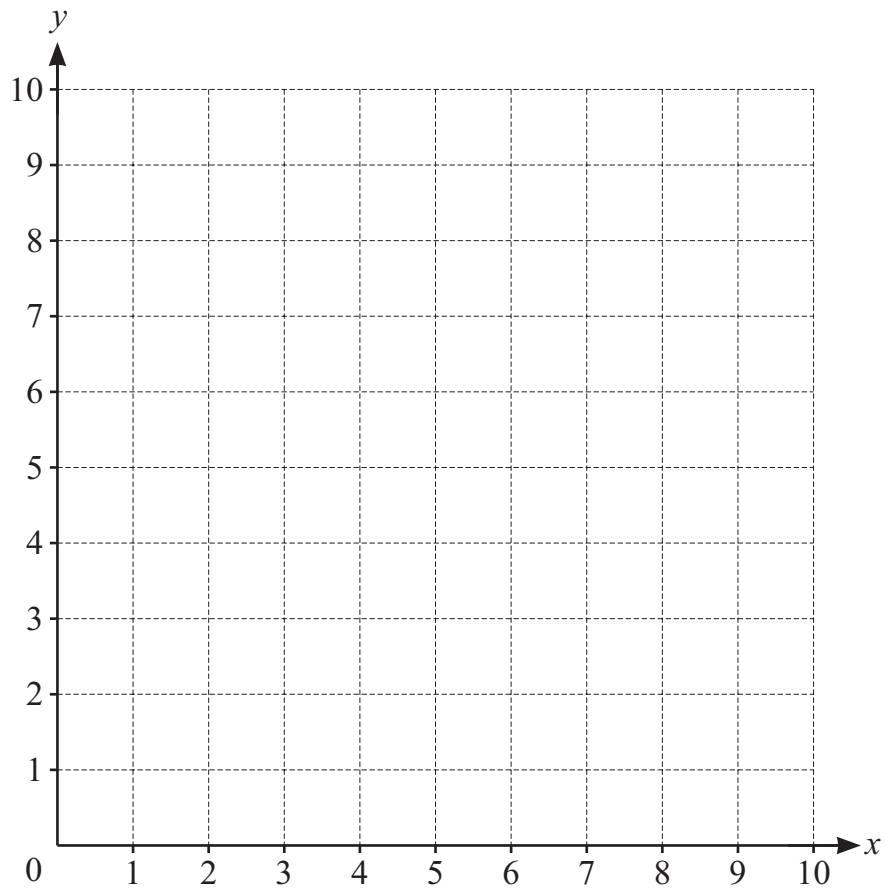
$$C = (50 + 80)n$$

$$C = 50n + 80$$

[1]

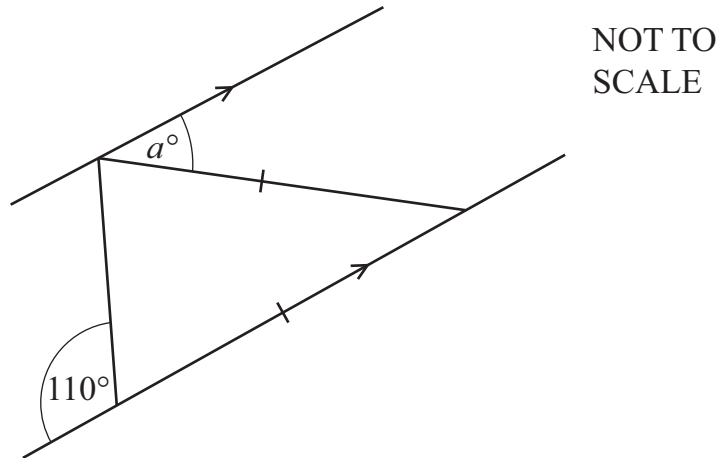
- 8 Draw the graph of $4x + 5y = 40$
You may use the table to help you.

x	0	
y		0



[3]

- 9 The diagram shows an isosceles triangle with its vertices on two parallel lines.



Find the value of a .

$a =$ [3]

- 10 Draw a ring around the correct calculation to **increase** 88 by 13%.

88×0.13

13×0.88

13×1.88

88×1.13

$88 \div 0.13$

[1]

- 11 A prism has a cross-section that is a **regular** polygon.
The prism has 4 planes of symmetry.

Write down the mathematical name for the shape that is the cross-section of the prism.

..... [1]

12 (a) Simplify $x^4 \times x^5$

..... [1]

(b) Write an integer in each box to complete the statement.

$$\boxed{} y^{15} \div 3y \boxed{} = 6y^8$$

[2]

13 Use one of the symbols $>$, $<$ or $=$ to complete each of these statements.

1 000 000 micrometres 1 metre

100 nanometres 1 micrometre

1 000 000 kilometres 1 light year

[2]

14 Eva walks the length of her garden.

She takes 20 seconds walking at a speed of 4 km/h.

Find the number of seconds she takes to walk the length of her garden at a speed of 5 km/h.

..... seconds [2]

15 Find the value of $5(x + 2)^2 - 7$ when $x = -3$

..... [2]

16 The table shows some information about the heights of children in class A and class B.

	Class A	Class B
Mean	1.40 m	1.42 m
Range	0.15 m	0.12 m

Tick (✓) to show if each of these statements is true or false or you cannot tell.

	True	False	Cannot tell
Children in class A are generally taller because the range for class A is larger.	☐	☐	☐
Children in class B are generally taller because the mean for class B is larger.	☐	☐	☐
The tallest child is in class B.	☐	☐	☐

[2]

17 Solve.

$$\frac{40}{x} = 20$$

$$x = \dots\dots\dots$$

$$\frac{8}{y-3} = 2$$

$$y = \dots\dots\dots$$

[3]

18 For this question, x can be an integer or a decimal.

Tick (✓) to show if each of these statements is true or false.

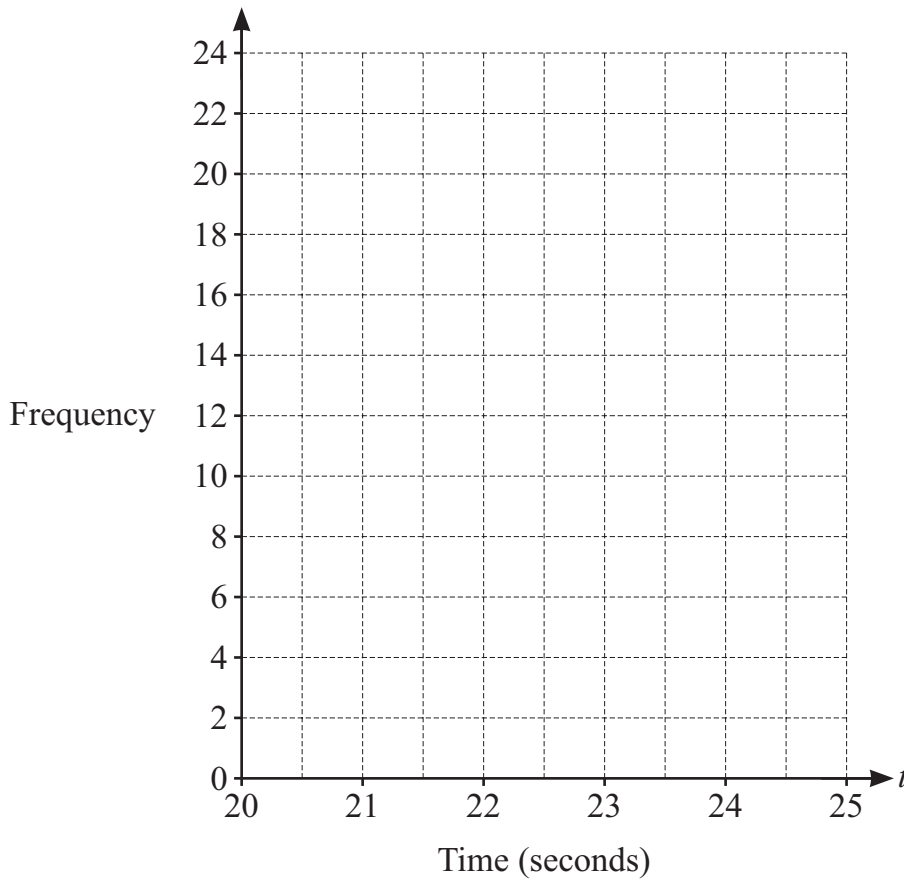
Statement	True	False
$x < -2$ is equivalent to $-2 < x$		
$5 > x$ is equivalent to $12x < 60$		
$x \geq 3$ is equivalent to $x > 2$		
$4x \geq 12$ is equivalent to $x > 3$		

[2]

19 The table shows information about the time taken for some athletes to complete a race.

Time (t seconds)	Frequency
$20 < t \leq 21$	5
$21 < t \leq 22$	12
$22 < t \leq 23$	17
$23 < t \leq 24$	22
$24 < t \leq 25$	2

(a) Draw a frequency polygon to show this information.



[3]

(b) The slowest time taken to complete the race was 24.1 seconds.

Draw a ring around each of the possible values for the range of the times taken in seconds.

5

4.2

4

3.1

3

[2]

20 A sequence has a first term of 22

The term-to-term rule is to subtract $2\frac{1}{2}$

(a) Show that the 10th term in this sequence is negative.

[2]

(b) Draw a ring around each value that is a term in this sequence.

-8

-12

-23

-47

-88

[2]

21 Here is a number fact.

$$102\,292 \div 428 = 239$$

Use this number fact to complete these calculations.

$$4.28 \times 23.9 = \dots\dots\dots$$

$$1022.92 \div 0.0239 = \dots\dots\dots$$

[2]

22 Work out.

$$2\frac{7}{25} \times \left(9.5 + \frac{1}{2}\right)^3$$

..... [3]

- 23 Point A has the coordinates $(-9, -4)$ and point C has the coordinates $(21, 11)$.
 Point B lies on the line AC .
 $AB : BC = 2 : 3$

Find the coordinates of point B .

(..... ,) [3]

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MATHEMATICS

0862/02

Paper 2

October 2025

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 **12** pages.

- 1 (a) Draw a ring around the irrational number in this list.

$$\frac{4}{5}$$

$$0.12$$

$$2\pi$$

$$-4.5$$

[1]

- (b) Calculate $\sqrt{2} \times \sqrt{32}$

..... [1]

- 2 Write 30 000 in standard form.

..... [1]

- 3 Chen tries to factorise four expressions.

Tick (✓) the **two** expressions that he has factorised correctly.

Expression	$3x^2 + 6x$	$8a^2 + 24a$	$6y^2 + 9y$	$14b^2 - 21b$
Answer	$3x(x + 2)$	$4a(2a + 8)$	$6y(y + 3)$	$7b(2b - 3)$
	☐	☐	☐	☐

[1]

- 4 Tick (✓) to show if each of these statements is true or false.

	True	False
All squares are also rectangles.	☐	☐
All parallelograms are also rhombuses.	☐	☐

[1]

- 5 Write a number in the box to make this statement correct.

$$8^{\boxed{}} = \frac{1}{8^4}$$

[1]

- 6 Insert **one** pair of brackets to make this statement true.

$$14 + \sqrt{36} \div 2 = 10$$

[1]

- 7 Triangle A is reflected in the line $x = -3$ to give triangle B.

Samira says,

‘Triangle B must be reflected in the line $y = -3$ to give triangle A.’

Samira is **not** correct.

Complete Samira’s statement with the correct line of reflection.

Triangle B is reflected in the line to give triangle A.

[1]

- 8 Mike thinks of a number, n .
He adds 3 to his number.
He then squares the result.

Write an expression, in terms of n , to represent the number Mike finishes with.

..... [1]

9 Write a number in each box to complete the statements.

$$(k + 5)(k + 9) = k^2 + \boxed{}k + 45$$

$$(p + 6)^2 = p^2 + 12p + \boxed{}$$

[2]

10 Write a **whole number** in the box to complete the statement.

$$4 < \sqrt{\boxed{}} < 4.5$$

[1]

11 (a) The n th term of a sequence is $\frac{n}{2}$

Find the value of the 12th term of the sequence.

..... [1]

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

1, 8, 27, 64, 125

Find the n th term of this sequence.

..... [1]

- 12** The scale drawing shows the position of a lighthouse, L .
The scale is 1 cm represents 10 km.



Scale: 1 cm = 10 km

A boat is 85 km from the lighthouse on a bearing of 110° .

On the scale drawing, mark the position of the boat with a cross ($\times$). [2]

- 13 (a)** Find the size of an exterior angle of a regular pentagon.

..... $^\circ$ [1]

- (b)** A regular polygon has an interior angle of 170° .

Work out the number of sides of the polygon.

..... [2]

- 14** On Monday Lily records the colours of cars passing her window. She writes the relative frequencies as probabilities in the table.

Colour of car	Red	Blue	Grey	Other
Probability		0.2	0.18	0.45

- (a)** Complete the table.

[1]

- (b)** On Tuesday 600 cars pass Lily's window.

Calculate the expected number of cars passing Lily's window on Tuesday that are blue or grey.

..... [2]

- 15** Tick (✓) to show if each of these polygons is regular or not regular.

Number of sides of polygon	Symmetry properties of polygon	Regular	Not Regular
4	2 lines of symmetry and rotational symmetry order 2		
4	4 lines of symmetry and rotational symmetry order 4		
10	10 lines of symmetry and rotational symmetry order 5		

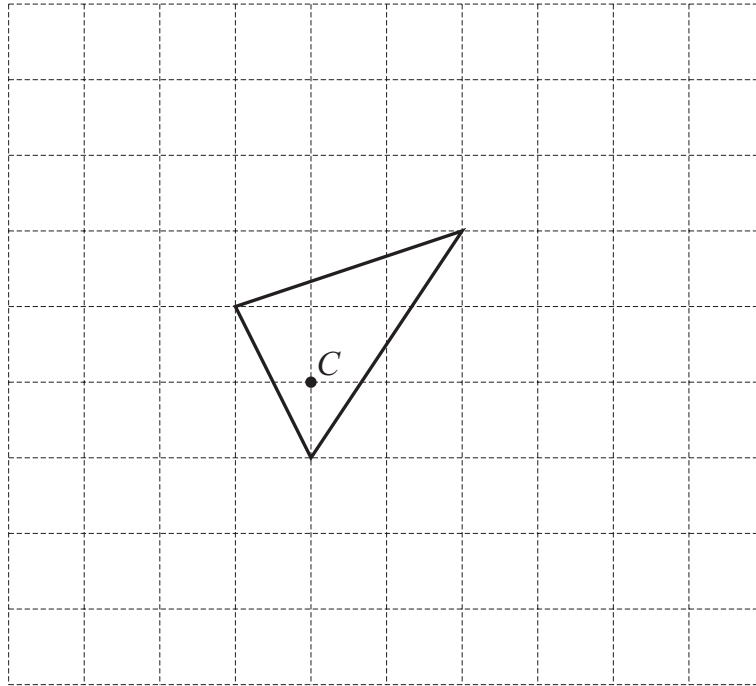
[1]

- 16 The length, L metres, of a car is 3.2 metres correct to one decimal place.

Complete the inequality to show the bounds of L .

$$\dots\dots\dots \leq L < \dots\dots\dots \quad [2]$$

- 17 A triangle is drawn on the grid.



On the grid, draw the enlargement of the triangle by scale factor 2 from centre C . [2]

18 Solve these simultaneous equations.

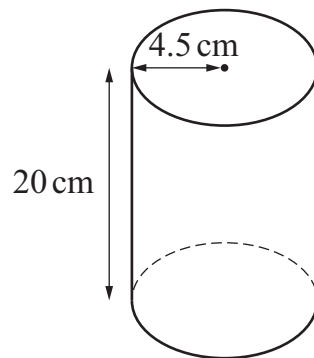
$$\begin{aligned} 3x + 8y &= 28 \\ x + 4y &= 16 \end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[3]

19 The diagram shows a cylinder with a radius of 4.5 cm and a height of 20 cm.



NOT TO
SCALE

Calculate the volume of the cylinder.

..... cm³ [2]

20 Rearrange the formula $y = 6x^2 - a$ to make x the subject.

$x =$ [3]

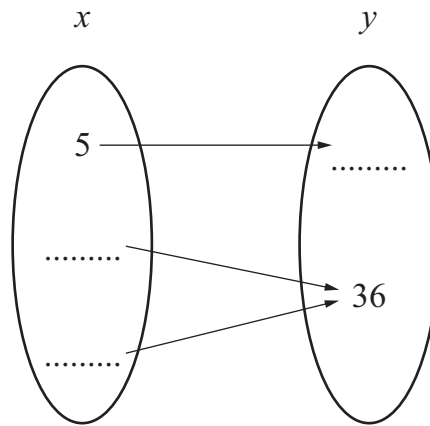
21 Jamila attempts to round the two numbers in the table correct to 3 significant figures. Her answers are wrong.

Complete the table with the two numbers correctly rounded to 3 significant figures.

Number	Jamila's answer	Number correct to 3 significant figures
207 499	207 500	
0.03478	0.03	

[2]

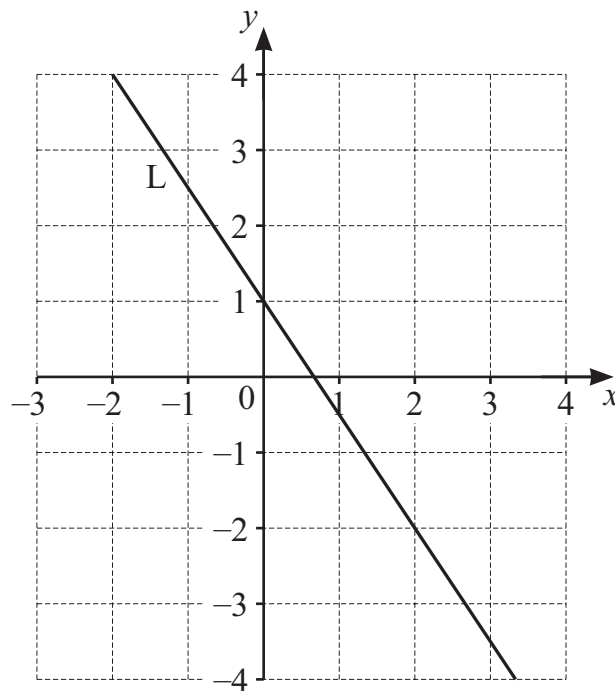
22 This mapping diagram is for the function $y = 4x^2$



Complete the diagram with **three** different values.

[3]

23 Line L is drawn on the grid.

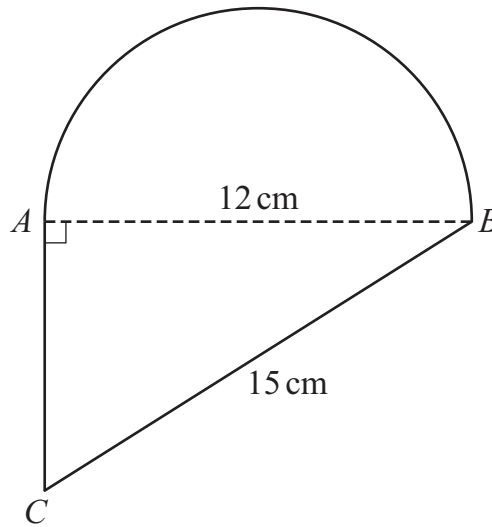


Find the equation of line L.

Give your answer in the form $y = mx + c$

$y =$ [2]

- 24 The diagram shows a shape formed by a semicircle with diameter AB joined to a right-angled triangle ABC .



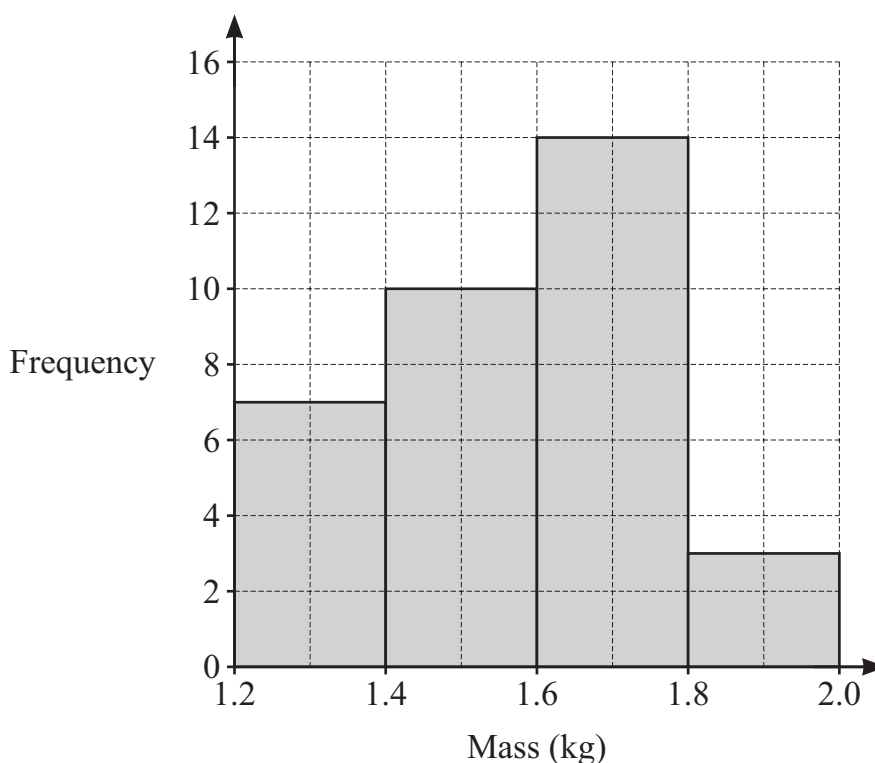
NOT TO
SCALE

$AB = 12$ cm and $BC = 15$ cm.

Calculate the total area of the shape.

..... cm^2 [4]

25 The graph shows information about the mass of each of 34 melons.



Calculate an estimate of the mean mass of these melons.

..... kg [4]

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0862/01

March 2026

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.
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INFORMATION

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- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages.

- 1 Work out the value of $10(n + 1)^4$ when $n = 1$

..... [1]

- 2 Tick (✓) to show if each piece of data is qualitative or quantitative.

	qualitative	quantitative
The number of people in a room.	☐	☐
The hair colour of a person.	☐	☐

[1]

- 3 Eva writes these **incorrect** statements.

$$6^0 = 0$$

$$15^2 \times 15^7 = 15^{14}$$

$$27^{12} \div 27^3 = 1^4$$

Write a number in each box to make Eva's statements correct.
One has been done for you.

$$6^0 = \boxed{}$$

$$15^2 \times 15^7 = \boxed{15} \boxed{}$$

$$27^{12} \div 27^3 = \boxed{} \boxed{}$$

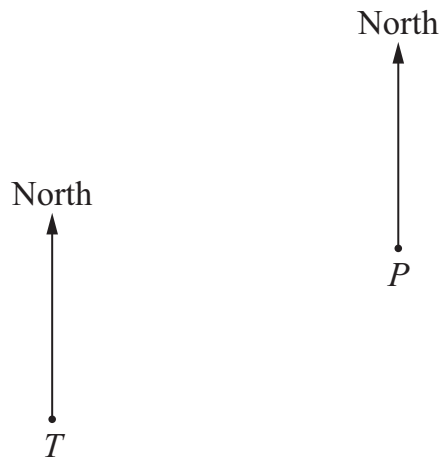
[3]

- 4 A square has a perimeter of 8 cm.
The square is enlarged so that the image has a perimeter of 88 cm.

Find the scale factor of the enlargement.

..... [1]

- 5 The diagram shows the position of tree T and pond P .



A bench, B , is on a bearing of 080° from T and on a bearing of 140° from P .

Mark the position of B on the diagram.

[2]

6 Work out.

$$2^3 + \left(2\frac{1}{2} + 1.5\right)^2$$

..... [2]

7 Here are the marks scored by two boys in their last six science exam papers.

Pierre	58%	62%	64%	67%	75%	77%
Yuri	74%	75%	77%	81%	83%	84%

Tick (✓) to show the correct word or words to complete each statement.

You cannot use the mean median mode to compare the average mark
for each boy. ☐ ☐ ☐

This is because it is too high it is too low it does **not** exist
☐ ☐ ☐

[1]

8 $\frac{1}{15^8} = 15^p$

Find the value of p .

$p =$ [1]

- 9 A is the point $(0, 0)$ and C is the point $(12, 4)$.
 ABC is a straight line.
 B is the point $(x, 1)$.

Find the value of x .

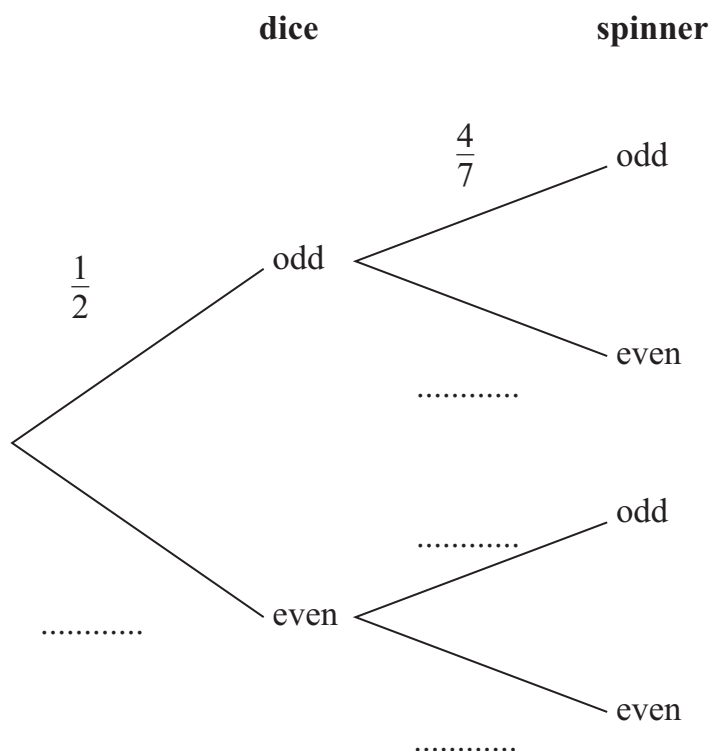
$x =$ [1]

- 10 A sequence has an n th term of $\frac{n}{4}$

Find the 40th term in this sequence.

..... [1]

- 11** Safia rolls a fair dice.
 She then spins a fair spinner with sides labelled 1 to 7
 She records if her results are odd or even.
 She starts to draw this tree diagram.



- (a)** Write the **four** missing probabilities on the tree diagram.

[2]

- (b)** A different spinner has a probability of $\frac{2}{5}$ of landing on a red section.
 This spinner is spun 1500 times.

Work out the number of times this spinner is expected to land on a red section.

..... [1]

- 12** Tick (✓) to show if each of these combinations of transformations results in a final image that is congruent or **not** congruent to the original object.

	congruent	not congruent
A reflection in the line $x = 2$ followed by a translation of $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.	☐	☐
A rotation of 90° clockwise about $(1, 2)$ followed by a reflection in the line $y = x$	☐	☐

[1]

- 13** Calculate.

$$\frac{4}{7} \div 2\frac{2}{3}$$

Give your answer as a fraction in its simplest form.

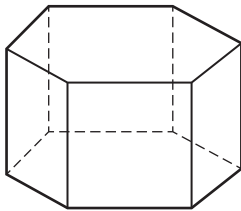
..... [3]

- 14 A **fraction**, f , lies in this interval $\frac{27}{56} < f < \frac{27}{53}$

Write a possible value of f .

$f =$ [1]

- 15 The diagram shows a prism with a height of h cm.



h cm

not to scale

- (a) The cross-section of the prism is a regular hexagon.

Write the number of planes of symmetry of this prism.

..... [1]

- (b) The cross-section of the prism has an area of 50 cm^2 .
The volume of the prism is 250 cm^3 .

Calculate the value of h .

$h =$ [1]

16 For the calculation $w \div d = 20$

w is a whole number

d is a decimal smaller than 1

Write a possible value for w and a possible value for d .

$w =$

$d =$

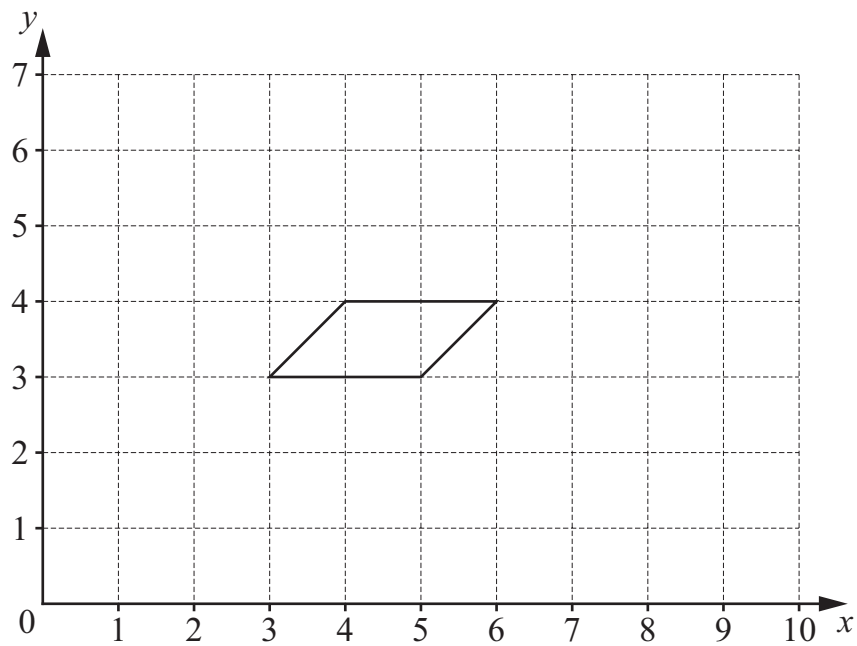
[1]

17 Solve.

$$5x + 2 \geq 2x + 8$$

..... [2]

18 The diagram shows a parallelogram on a grid.



The parallelogram is translated by $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$.

Draw a ring around each of the coordinates that are vertices of the parallelogram after this translation.

(6, 2)

(3, 7)

(9, 5)

(9, 3)

(4, 6)

[1]

19 Solve the simultaneous equations.

$$\begin{aligned}x - 3y &= -17 \\ -2x + 3y &= 19\end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[2]

20 Draw a ring around the value that is **closest** to $\sqrt[3]{60}$

3

4

8

20

[1]

21 The table gives some information about sequence A and sequence B.

Complete the table.

	first five terms of sequence	n th term of sequence
sequence A	3, 6, 11, 18, 27	$n^2 + 2$
sequence B	4, 7, 12, 19, 28	

[1]

22 Work out.

$$40.5 \times 10^{-3}$$

Give your answer as a decimal.

..... [1]

23 Polygons A, B and C are all **regular** polygons.

The table gives some information about the size of one interior angle of each polygon.

Tick (✓) to show which of these polygons will tessellate and which will **not** tessellate. One has been done for you.

polygon	size of interior angle	will tessellate	will not tessellate
A	60°	✓	
B	108°		
C	120°		

[1]

24 Expand and simplify.

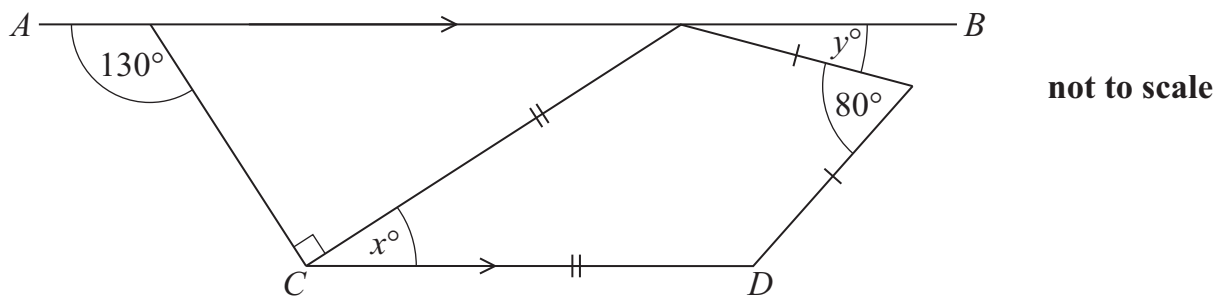
$$(x + 10)(x - 3)$$

..... [2]

25 Make m the subject of $m^2 - y = a^2$

$m =$ [2]

26 The diagram shows a triangle and a kite drawn between two parallel lines, AB and CD .



Find the value of x and the value of y .

$x =$

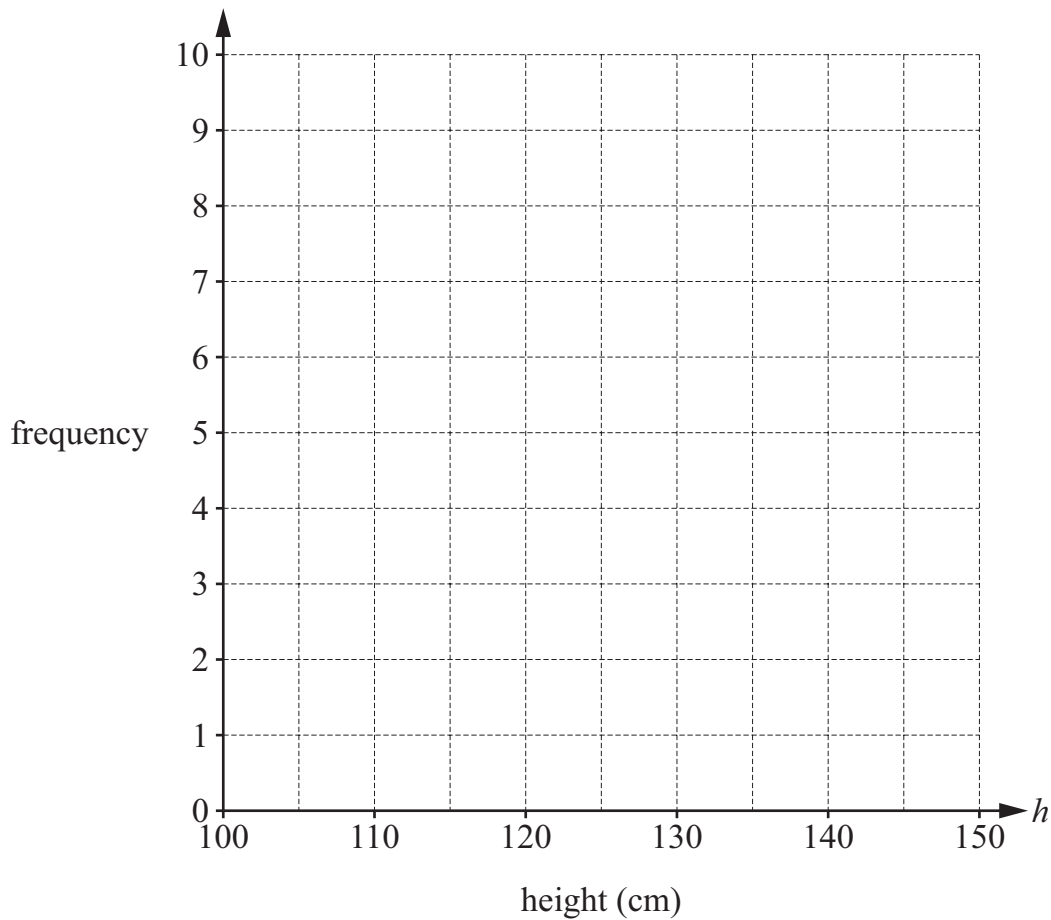
$y =$

[4]

27 The table shows information about the heights of some children.

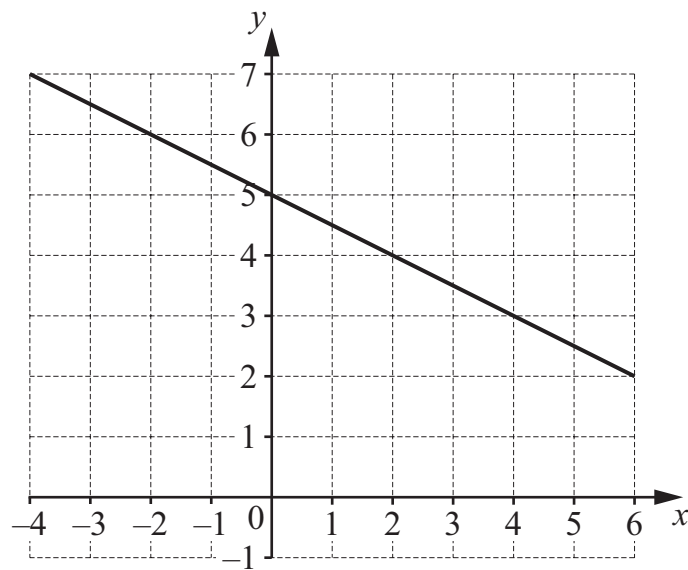
height (h , cm)	frequency
$100 \leq h < 110$	5
$110 \leq h < 120$	8
$120 \leq h < 130$	4
$130 \leq h < 140$	2
$140 \leq h < 150$	3

On the grid, draw a frequency polygon to show this information.



[3]

28 The diagram shows a line drawn on a grid.

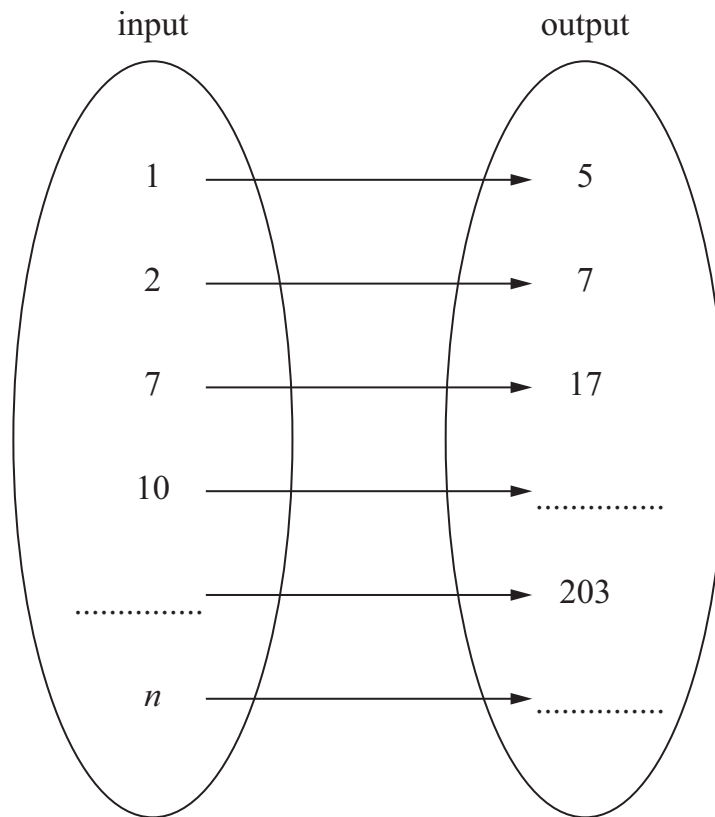


Find the equation of the line.

Give your answer in the form $y = mx + c$

$y =$ [2]

29 Here is a mapping diagram for a linear function.



Complete the mapping diagram.

[3]

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0862/02

March 2026

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. Do **not** use correction fluid or tape.
- 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 Write 60 000 in standard form.

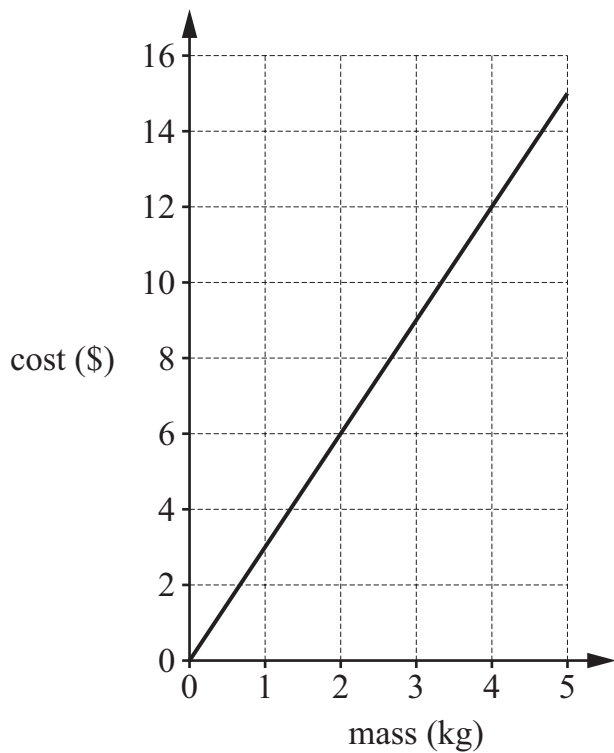
..... [1]

- 2 Represent $-4 \leq x < 2$ on the number line.



[1]

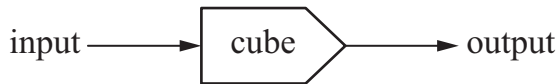
- 3 The graph shows the cost of different masses of lemons.



Work out the cost of 6 kg of lemons.

\$ [1]

- 4 Here is a function machine.



Complete these sentences.

When the input is 3 the output is

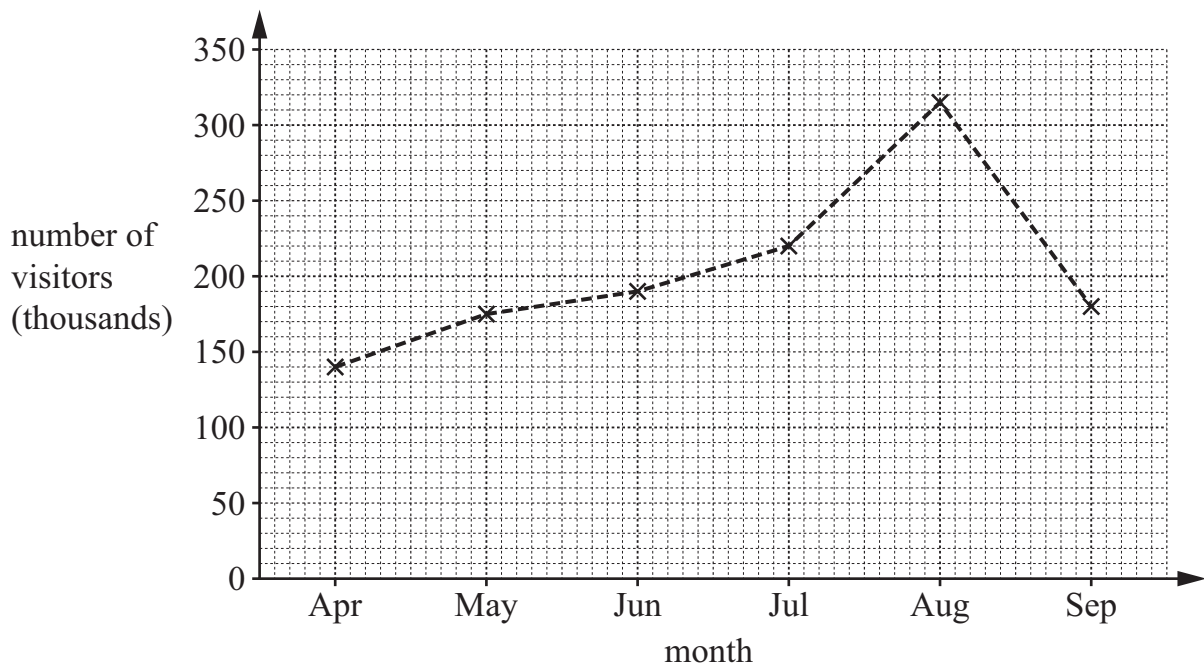
When the output is 64 the input is

[2]

- 5 The table shows the number of visitors to a holiday resort during six months.

month	Apr	May	Jun	Jul	Aug	Sep
number of visitors (thousands)	140	175	190	220	305	180

Oliver draws this time series graph to show the information.



Oliver has made a mistake plotting the point for one of the months.

Draw a ring around the point that Oliver has plotted incorrectly.

[1]

6 Tick (✓) to show if each of the statements is true or false.

	true	false
$(0, 0)$ is on the line $y = 2x + 1$	☐	☐
$(0, 7)$ is on the line $y = 8x + 7$	☐	☐
The line $y = 5x - 2$ crosses the y -axis at $(0, 5)$.	☐	☐
The line $y = 2x + 6$ crosses the x -axis at $(-3, 0)$.	☐	☐

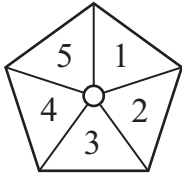
[2]

7 Calculate.

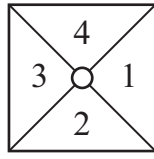
$$\sqrt{108} \div \sqrt{12}$$

..... [1]

8 Lily spins these fair spinners.



spinner 1



spinner 2

Lily draws this possibility diagram.

spinner 1	1	⊗	×	×	×
	2	×	⊗	×	×
	3	×	×	⊗	×
	4	×	×	×	⊗
	5	×	×	×	×
		1	2	3	4
		spinner 2			

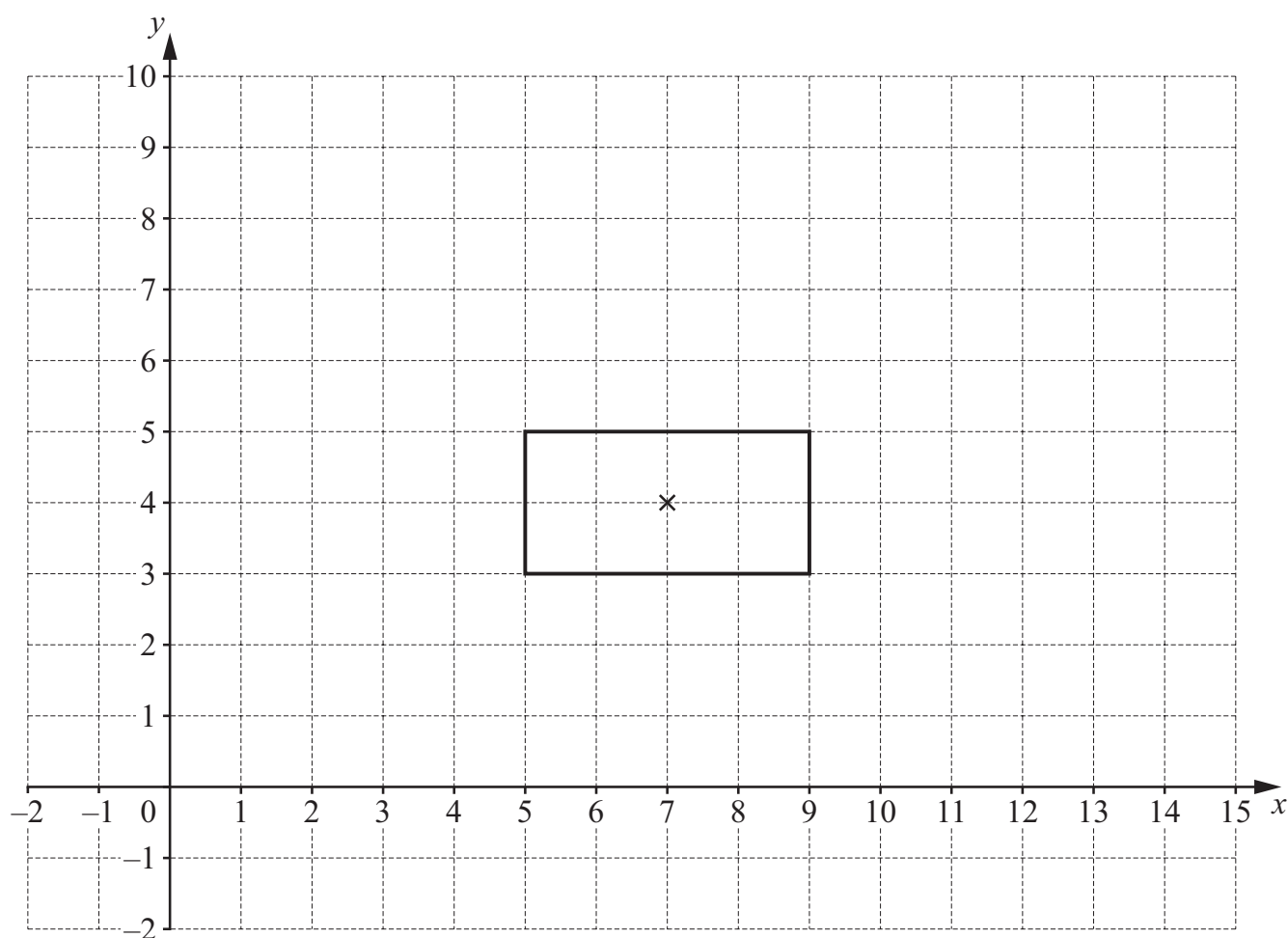
Lily says, ‘The probability of spinning the same number on both spinners is $\frac{4}{25}$,’

Lily is **not** correct.

Write the correct probability.

..... [1]

- 9 The diagram shows a rectangle drawn on a grid.



Draw the image of the rectangle after an enlargement, scale factor 3, centre (7, 4).

[2]

- 10 The probability it will rain tomorrow is 0.7
Mia writes these statements.

Tick (✓) to show if each of Mia's statements is correct or **not** correct.

$P(\text{it will rain tomorrow}) + P(\text{it will **not** rain tomorrow}) = 100\%$

correct

☐

not correct

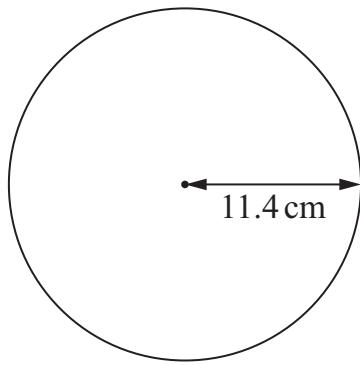
☐

$P(\text{it will **not** rain tomorrow}) = 30\%$

☐
☐

[1]

- 11 (a) The diagram shows a circle with a radius of 11.4 cm.

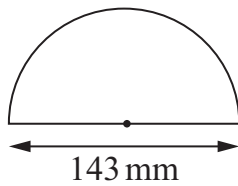


not to scale

Calculate the area of the circle.

..... cm^2 [1]

- (b) The diagram shows a semicircle with a diameter of 143 mm.



not to scale

Calculate the perimeter of the semicircle.

..... mm [2]

- 12** The time taken to run a race is 15 seconds, correct to the nearest second.

Complete the inequality to show the bounds for the time taken to run the race.

..... s $\leq$ time < s

[2]

- 13 (a)** Here are the first five terms of a sequence.

2, 5, 10, 17, 26

Find the next term of the sequence.

..... [1]

- (b)** A different sequence has the term-to-term rule ‘square then subtract 3’
The 4th term of this sequence is 1

Find the 5th term of this sequence.

..... [1]

- 14 It takes 3 electricians 40 hours to rewire a building.

Work out the time it would take 5 electricians to do this work.

..... hours [2]

- 15 Ten students each take a maths test and a science test.
Their results are shown in this back-to-back stem-and-leaf diagram.

maths test					science test			
			1	5	0	7		
		7	5	6	2	2	8	9
	9	8	8	7	1	6	7	
7	5	4	2	8	5			

key: 2|8|5 represents a score of
82 in the maths test and 85 in the science test

- (a) Complete these sentences.

The lowest score in the science test is

The highest score in the maths test is

[2]

- (b) Calculate the **difference** between the modal maths score and the modal science score.

..... [1]

- 16 Chen says, 'I think of a number, n .
Then I add 3
Then I square the result.'

Write an algebraic expression for this rule.

..... [1]

- 17 In 2022 a house costs \$240 000
In 2023 the cost of the house increases by 3%.
In 2024 the cost of the house increases by 2% of its cost in 2023.

Find the cost of the house after **both** increases.

\$ [2]

- 18 Show that $3x(3 - 6x) + 2x(1 + 9x)$ simplifies to $11x$

[2]

- 19 The interior angle of a regular polygon is 150° .

Find the number of sides of the polygon.

..... [2]

- 20 The line AB has a midpoint of $(1, 2)$.

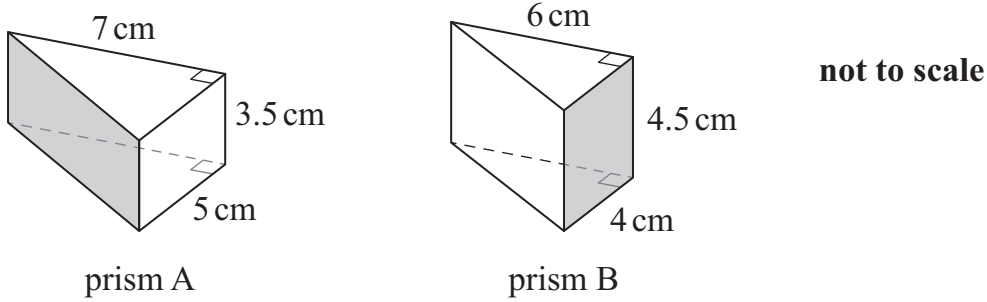
Write possible coordinates for A and B .

$A = (\text{.....} , \text{.....})$

$B = (\text{.....} , \text{.....})$

[2]

- 21 Here are two triangular prisms, A and B.
The cross-section of each prism is a right-angled triangle.
One rectangular face on each prism is shaded.



- (a) Tick (✓) the correct column in the table for the volume of each prism.

	volume is less than 54 cm^3	volume is equal to 54 cm^3	volume is greater than 54 cm^3
prism A			
prism B			

[1]

- (b) Calculate the **difference** between the area of the shaded face of prism A and the area of the shaded face of prism B.
Give your answer correct to one decimal place.

..... cm^2 [4]

22 The table shows information about the masses of 50 chicks.

mass, m (g)	frequency
$30 \leq m < 40$	24
$40 \leq m < 50$	12
$50 \leq m < 60$	9
$60 \leq m < 70$	5

(a) Write the modal class interval.

..... $\leq m <$

[1]

(b) Calculate an estimate of the mean mass of the chicks.

..... g [3]

23 Solve these equations.

$$\frac{135}{x} = 5$$

$$x = \dots\dots\dots$$

$$\frac{8}{y-1} = 16$$

$$y = \dots\dots\dots$$

[3]

24 Two numbers are in the ratio 3 : 5
One of the numbers is 4.5

Find the **two** possible values for the other number.

.....

.....

[2]

25 Simplify.

$$\frac{6y + 15xy}{3y}$$

..... [2]

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Page 218

- 1 Complete the sentence using a word from the box.

nanometre	kilometre	millimetre	micrometre
-----------	-----------	------------	------------

The most suitable unit for measuring the length of a river

is the

[1]

- 2 Work out the value of $\frac{n^4}{2}$ when $n = 2$

..... [1]

- 3 A circle has a radius of 5 cm.

Use a value of 3 for π to calculate the approximate area of the circle.

..... cm^2 [1]

- 4 Make h the subject of the formula.

$$h^2 = w$$

$h =$ [1]

5 Calculate.

$$\left(1 - \frac{5}{9}\right) \times \left(1 - \frac{5}{8}\right)$$

Give your answer as a fraction in its simplest form.

..... [2]

6 Here are two combinations of transformations.

a translation followed by a reflection

a rotation followed by a reflection

Draw a ring around how many of the two combinations of transformations result in a final shape that is congruent to the original shape.

none

only one

both

not possible to say

[1]

7 Draw a ring around the conversion that is correct.

$$\frac{1}{3} = 0.3$$

$$\frac{2}{3} = 0.\dot{2}$$

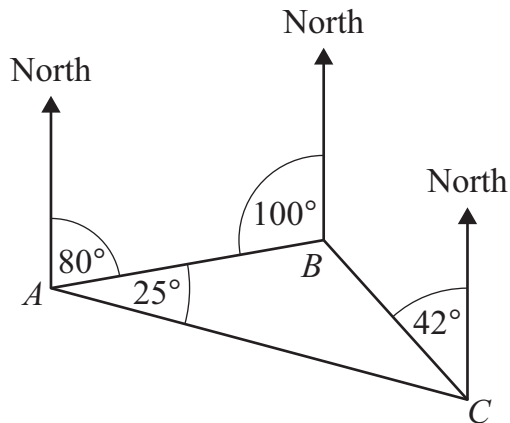
$$\frac{4}{9} = 4.9$$

$$\frac{5}{9} = 0.\dot{5}$$

[1]

- 8 The scale drawing shows the positions of towns A , B and C .

scale: 1 cm represents 10 km



- (a) Rajiv says, ‘The bearing of B from C is 042° .’

Explain why Rajiv is **not** correct.

.....
 [1]

- (b) Complete these sentences with the correct values.

The bearing of town C from town A is $^\circ$.

In real life, the distance from town A to town C is km.

[2]

- 9 Draw a line to match each calculation to the closest estimate of the answer.

$\sqrt{24.89}$

12

$(-6.12)^2$

5

$\sqrt{144.2}$

36

[1]

10 Chen says,

‘I think of a number, n .

I add 5

Then I square.’

Write an expression for the number Chen finishes with.

..... [1]

11 The table shows the original cost of two coats.

coat A	\$60
coat B	\$70

The original cost of coat A increases by 10%.

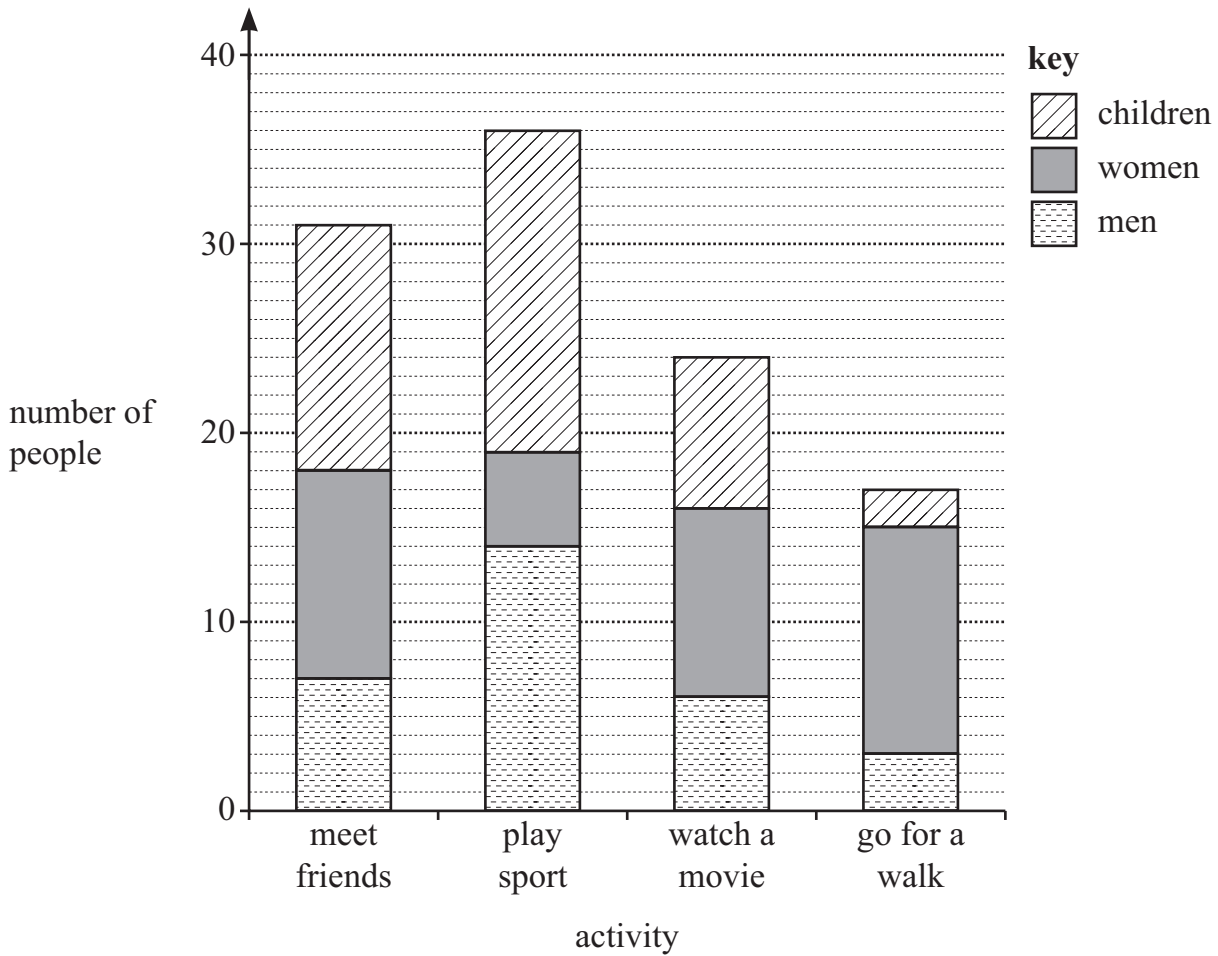
The original cost of coat B decreases by 5%.

Tick (✓) to show if each of these statements is correct or not correct.

	correct	not correct
The new cost of coat A is greater than \$70	☐	☐
The new cost of coat B is \$66.50	☐	☐

[1]

- 12 Mia collects data from a group of men, women and children. She asks each person if they like any of four activities. The compound bar chart shows the number who said they like each activity.



Mia writes some statements about her data.

Tick (✓) to show if each of Mia's statements is true or false.

statement	true	false
12 men said they like to play sport.		
A total of 17 people said they like to go for a walk.		
13 children said they like to meet friends.		
16 women said they like to watch a movie.		

[2]

- 13** Lily and Samira share the driving on a journey.

The ratio of the distance Lily drives to the distance Samira drives is $2 : 5$
 Samira drives 210 **more** kilometres than Lily.

Calculate the distance Lily drives.

..... km [2]

- 14** A rectangle has a perimeter of k cm.
 It is enlarged by a scale factor of 20
 The enlarged rectangle has a perimeter of 260 cm.

Find the value of k .

$k =$ [1]

- 15** Calculate.

$$\frac{-1.2 \times 5}{-0.4}$$

..... [2]

- 16 Oliver records the number of passengers on some buses.

This back-to-back stem-and-leaf diagram shows the number of passengers on each of the eight buses in the town centre.

countryside					town centre			
				2				
				3	8			
				4	0	3	7	9
				5	3	4	4	

key: 2|3|8 represents

..... passengers on a bus in the countryside and

..... passengers on a bus in the town centre

Here are the number of passengers on the eight buses in the countryside.

48 32 27 32 50 41 23 27

- (a) Complete the back-to-back stem-and-leaf diagram.

[3]

- (b) Complete the table.

	countryside	town centre
median	32	
range	27	

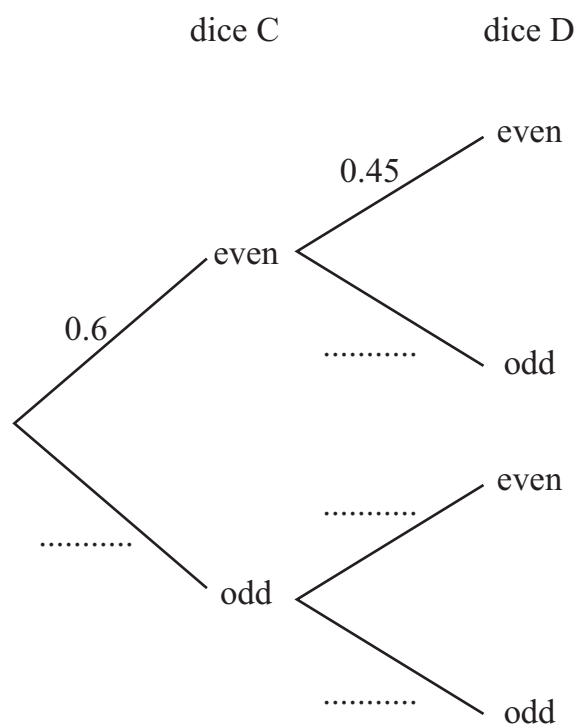
[2]

17 (a) Carlos has two biased dice.

The probability of rolling an even number on dice C is 0.6

The probability of rolling an even number on dice D is 0.45

Complete the tree diagram with the four missing probabilities.



[2]

- (b) Carlos also has two **fair** spinners.
 Spinner E has sides numbered 1 to 5
 Spinner F has sides numbered 1 to 9

Carlos draws this possibility diagram to represent the outcomes of spinning both spinners.

spinner E	5		x	x	x	x	x	x	x	x	x	x	x
	4		x	x	x	x	x	x	x	x	x	x	x
	3		x	x	x	x	x	x	x	x	x	x	x
	2		x	x	x	x	x	x	x	x	x	x	x
	1		x	x	x	x	x	x	x	x	x	x	x
			1	2	3	4	5	6	7	8	9	spinner F	

Carlos says,

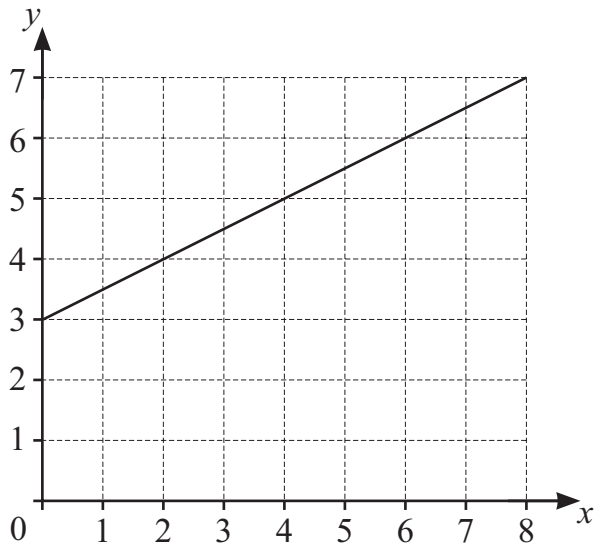
‘There are 14 numbers in total on both spinners and 6 of them are even.
 So the probability of spinning an even number on both spinners is $\frac{6}{14}$ ’

Carlos is **not** correct.

Find the correct probability of spinning an even number on both spinners.

..... [2]

- 18 The diagram shows the graph of a straight line.



Find the equation of the line.

Give your answer in the form $y = mx + c$

$y =$ [2]

- 19 The interior angle of a regular polygon is 150° .

Find the number of sides of the polygon.

..... [2]

20 Work out.

$$12.3 \times 10^{-4}$$

..... [1]

21 Narrow ribbon costs 25 cents per metre.
Wide ribbon costs 40 cents per metre.

Eva sells n metres of narrow ribbon and w metres of wide ribbon.
The total cost of the ribbon she sells is \$7.75

Tick (✓) to show each of the functions that correctly represent this information.

$$775 = 25n + 40w$$

☐

$$7.75 = 25n + 40w$$

☐

$$7.75 = 0.25n + 0.40w$$

☐

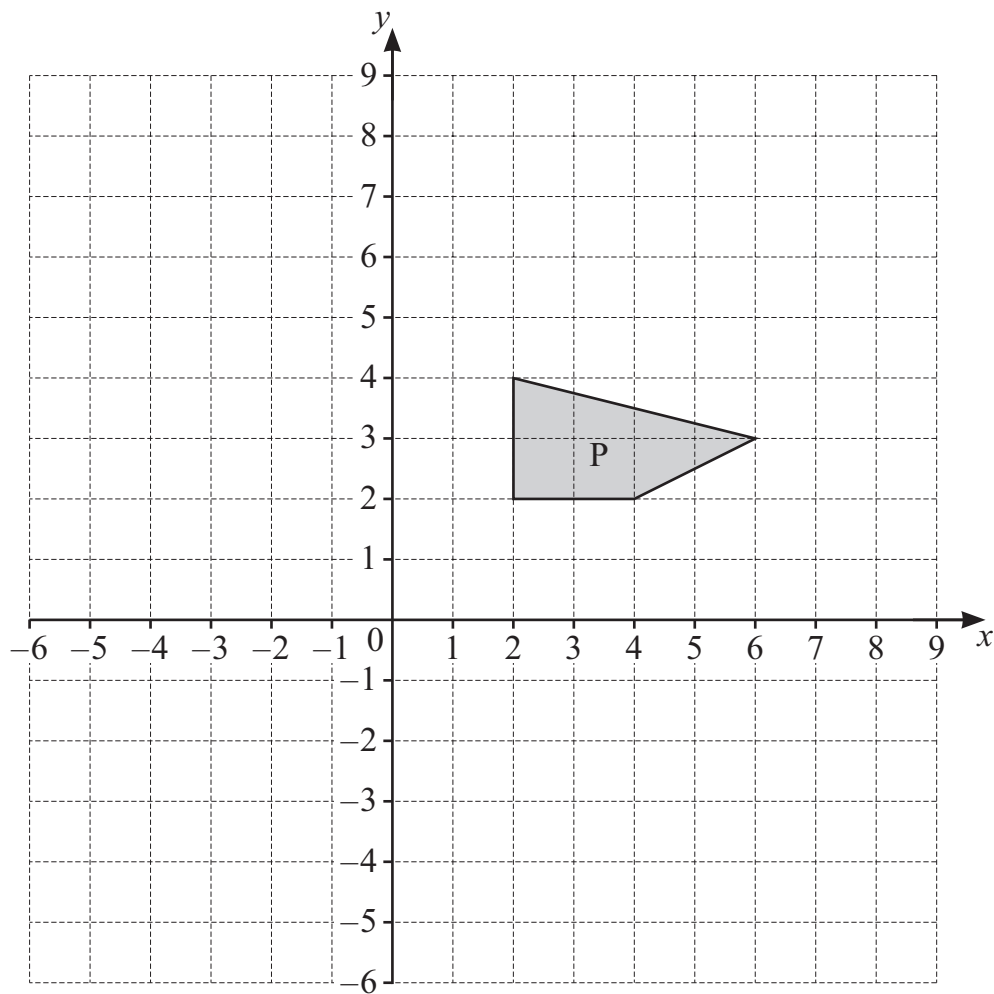
[1]

22 Write a **whole number** in the box to make this statement true.

$$3 < \sqrt{\boxed{}} < 4$$

[1]

23 The diagram shows shape P drawn on a grid.



Shape P is reflected in the line $y = 1$ to make shape Q.

Shape Q is then translated by $\begin{pmatrix} 1 \\ -3 \end{pmatrix}$ to make shape R.

Draw shape R on the grid.

You do **not** need to rub out your shape Q.

[2]

24 Tick (✓) to show if each of these facts about the line $y = 1 - 5x$ is true or false.

	true	false
The line passes through the point $(-2, 11)$.	☐	☐
The line is parallel to $y = 5x - 1$	☐	☐
The line intersects the x -axis at the point $(-5, 0)$.	☐	☐
When x increases by 1, y decreases by 5	☐	☐

[2]

25 The mass of a suitcase is 11.30 kg correct to 2 decimal places.

Find the lower bound and the upper bound of the mass of the suitcase.

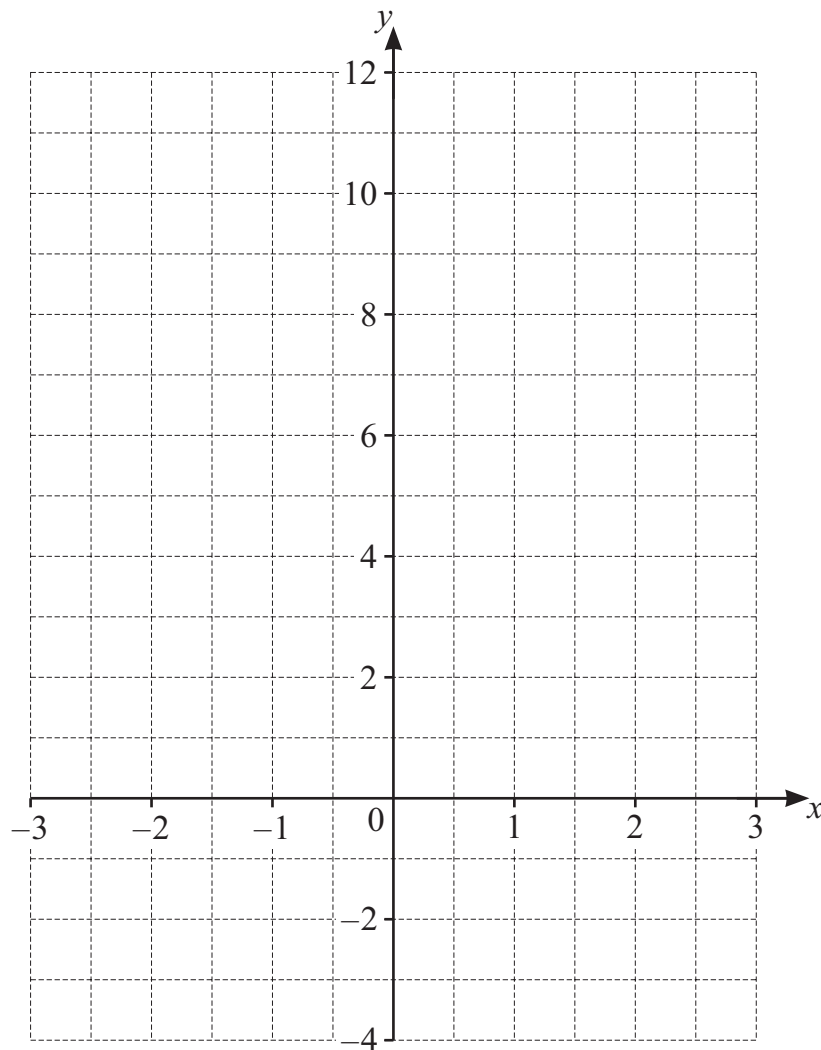
lower bound = kg

upper bound = kg

[2]

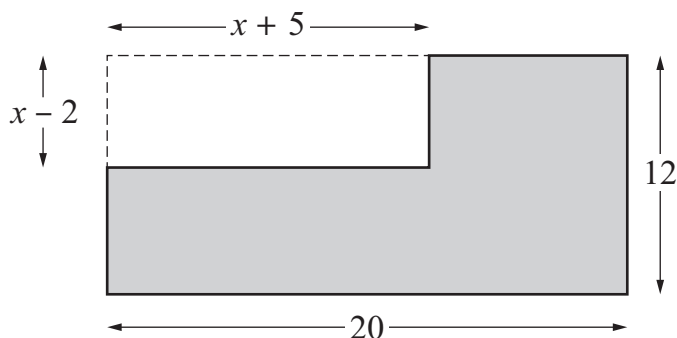
- 26 Draw the graph of $y = x^2 + 1$ for values of x between -3 and 3
You may use the table to help you.

x	-3	-2	-1	0	1	2	3
y	10					5	



[4]

- 27 The diagram shows a rectangle with a smaller rectangle cut out of it.
All measurements are in centimetres.



not to scale

Write an expression for the **shaded** area.
Give your answer in its simplest form.

..... cm^2 [3]

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0862/02

May 2026

1 hour

You must answer on the question paper.

You will need: Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS

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- 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 **12** pages.

- 1 Find the exterior angle of a regular 15-sided polygon.

..... ° [1]

- 2 Calculate.

$$\sqrt{216} \times \sqrt{24}$$

..... [1]

- 3 Solve.

$$\frac{145}{p} = 5$$

$p =$ [1]

- 4 Write 70 000 in standard form.

..... [1]

- 5 Write the correct power in the box.

$$(x^7)^2 = x \boxed{}$$

[1]

- 6 Mike collects some data from each student in his class.

Draw a ring around the data that is quantitative.

name

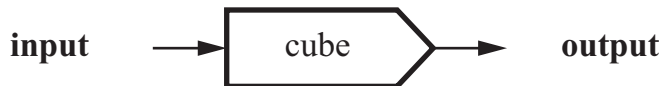
hair colour

height in cm

favourite food

[1]

- 7 Here is a function machine.



Complete the table for this function.

input	output
4	
	343

[2]

- 8 A bag contains 10 coloured counters.
6 are pink, 3 are white and 1 is brown.
Angelique picks a counter from the bag at random.

Find the probability that Angelique's counter is pink or white.

..... [1]

9 Solve the simultaneous equations.

$$5x - 4y = 18$$

$$2x + 4y = 24$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[2]

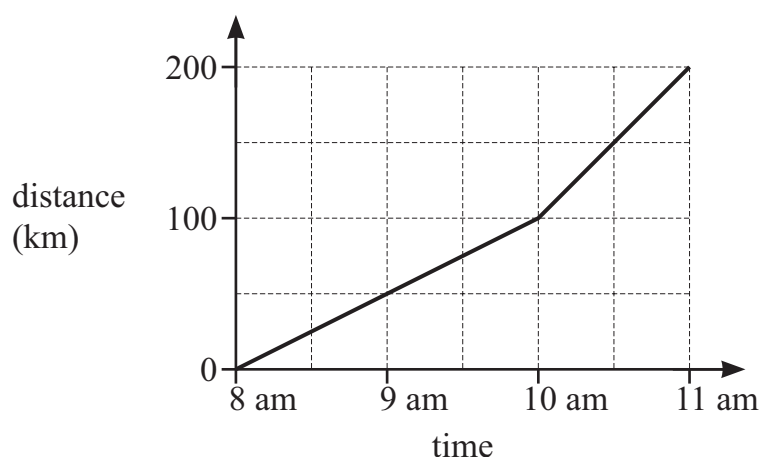
10 Write each of these three numbers in the correct place in the table.

−8 7 0.3

	an integer	not an integer
a natural number		
not a natural number		

[1]

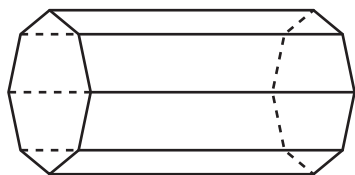
- 11 The diagram shows a distance–time graph for a car journey.



Calculate the speed of the car between 8 am and 10 am.
Give your answer in km/h.

..... km/h [1]

- 12 A prism has a cross-section that is a regular octagon.



not to scale

- (a) The area of the cross-section is 25 cm^2 .
The length of the prism is 14 cm.

Find the volume of the prism.

..... cm^3 [1]

- (b) Draw a ring around the number of planes of symmetry of this prism.

1

4

5

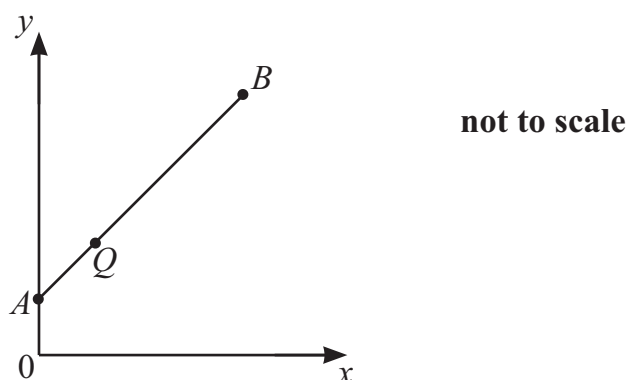
8

9

[1]

- 13** Point A has coordinates $(0, 3)$ and point B has coordinates $(16, 23)$.

Point Q lies $\frac{1}{4}$ of the way along the line AB from A .



Find the coordinates of point Q .

$Q = (\dots\dots\dots , \dots\dots\dots)$ [2]

- 14** Naomi wants to find the average height of plants in her garden.

She decides to take a sample of the plants.

Here is her plan to collect her sample.

At random, pick a part of the garden with an area of 1 m^2 .

Measure the heights of the five tallest plants in this 1 m^2 part of the garden.

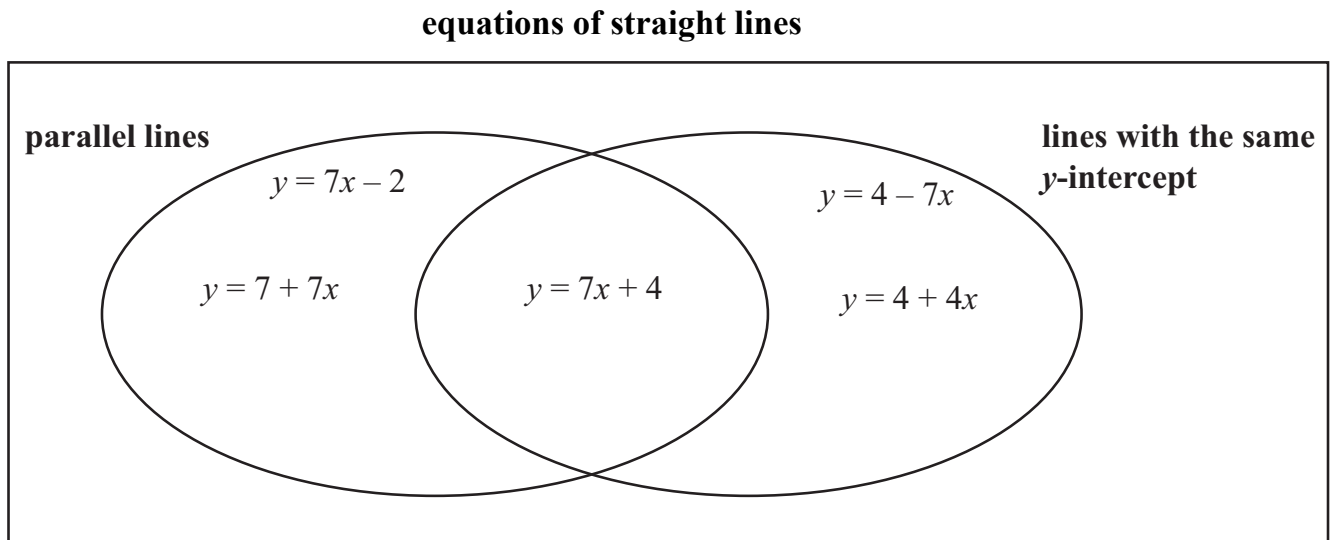
Give a reason why Naomi's sampling method may be biased.

.....
 [1]

- 15** A sequence has a term-to-term rule ‘multiply by h ’ where h is a constant.
 The 3rd term of the sequence is 7
 The 6th term of the sequence is 56
 Find the 5th term of the sequence.

..... [2]

- 16** Some equations of straight lines have been placed in the Venn diagram.



Write the equation $y = 4x + 7$ in the correct part of the Venn diagram.

[1]

- 17** Find the value of t and the value of w in these equations.

$$13^{10} \times 13^{-6} = 13^t$$

$$17 \times 17^3 \times 17^{-2} = 17^w$$

$$t = \dots\dots\dots$$

$$w = \dots\dots\dots$$

[2]

18 The table shows information about five different linear sequences.

sequence name	first four terms of sequence	how the sequence is related to sequence A	n th term
A	5, 7, 9, 11		$2n + 3$
B	7, 9, 11, 13	Add 2 to each term in sequence A	$2n + 5$
C			$2n - 7$
D		Multiply each term in sequence A by 3	
E	-5, -7, -9, -11		

Complete the table.

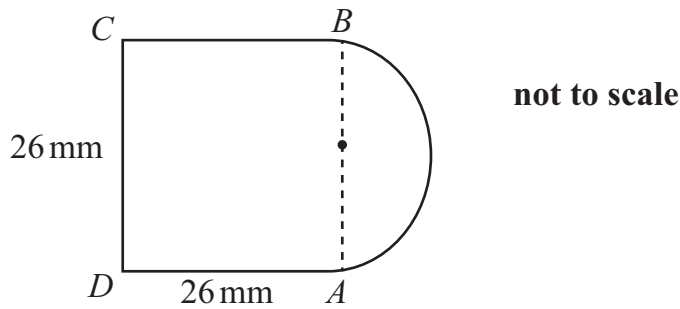
[3]

- 19 In 2024 a bike costs \$1200
In 2025 the cost of the bike decreases by 5% of its cost in 2024
In 2026 the cost of the bike decreases by 10% of its cost in 2025

Find the final cost of the bike after both decreases.

\$ [2]

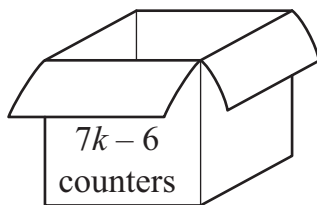
- 20** A shape is made by joining a semicircle with diameter AB to **square** $ABCD$. The square has a side length of 26 mm.



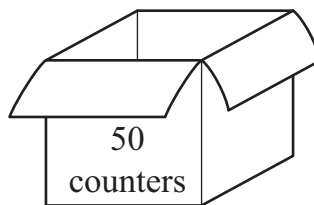
Find the area of the shape.

..... mm^2 [3]

- 21** Yuri has two boxes containing counters.



box C



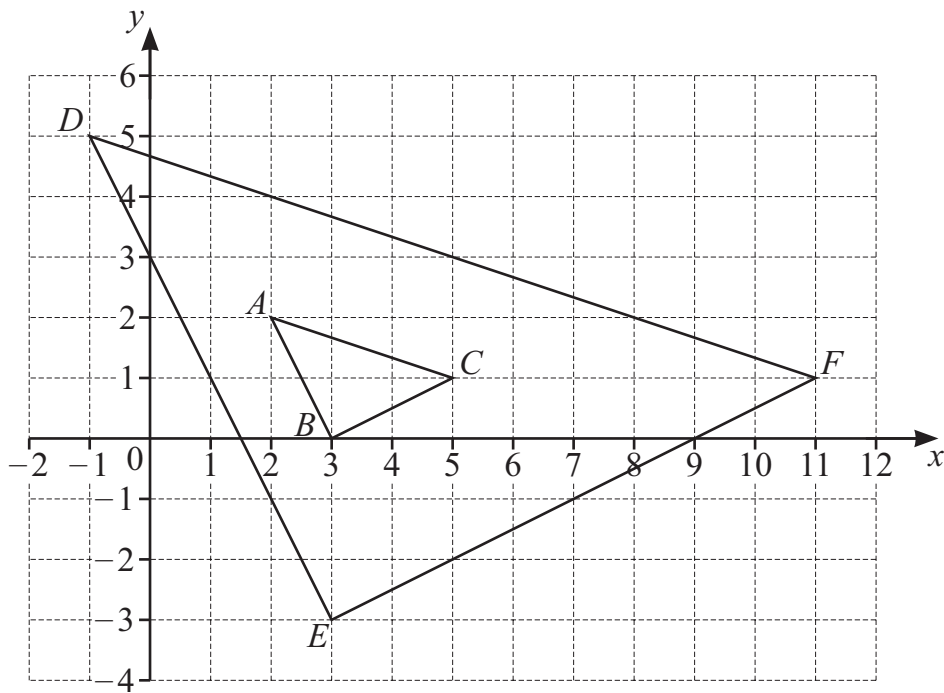
box D

Box C contains fewer counters than box D.
 k is an integer.

By writing and solving an inequality in terms of k , find the **greatest** possible number of counters in box C.

..... [4]

22 The diagram shows two triangles, ABC and DEF .



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

.....
 [3]

23 The table gives some information about the heights of 20 horses.

height, h cm	frequency	midpoint	midpoint $\times$ frequency
$140 \leq h < 150$	2		
$150 \leq h < 160$	5		
$160 \leq h < 170$	10		
$170 \leq h < 180$	3		

Calculate an estimate of the mean height of the horses.

..... cm [3]

24 A wheel on Safia's car has a radius of 304 mm.
The wheel makes 28 complete revolutions as she drives in a straight line.

Show that Safia drives less than 60 metres.

[4]

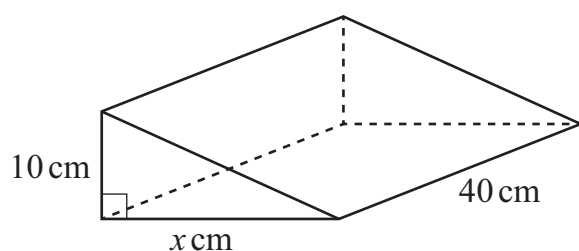
25 Here are the first five terms of a sequence.

4, 7, 12, 19, 28

Find the n th term of the sequence.

..... [2]

26 The diagram shows a triangular prism.
The cross-section is a right-angled triangle.



not to scale

The area of the **largest** face of the prism is 1040 cm^2 .

Find the value of x .

$x =$ [3]

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