Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

8643639165

MATHEMATICS **0862/01**

Paper 1 **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.
- 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 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]

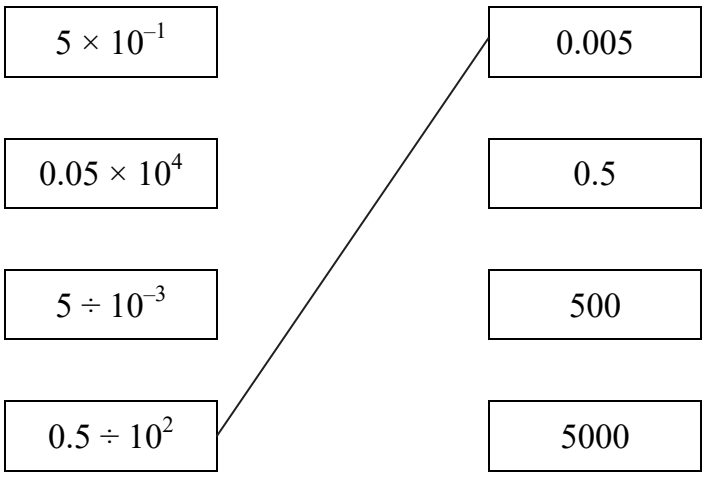
4 Expand and simplify.

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

..... [2]

5 Draw a line to match each calculation to its answer.

K One has been done for you.



[1]

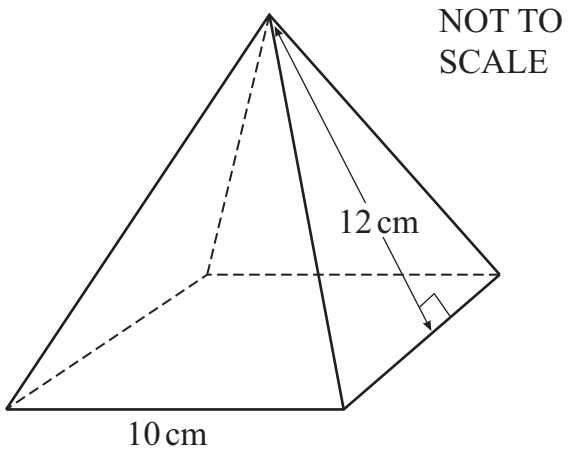
6 Work out the value of $(10 - 2x)^4$ when $x = 4$

K

..... [2]

7 A pyramid has

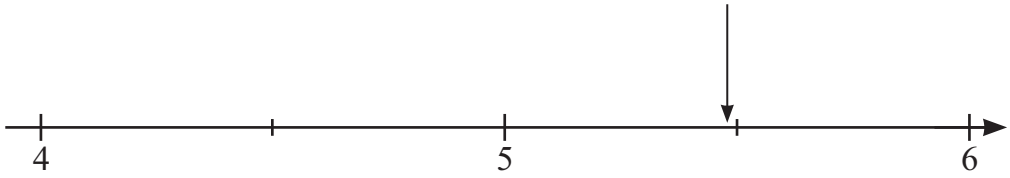
- a square base with a side length of 10 cm
- four congruent triangular faces each with a height of 12 cm.



Calculate the surface area of the pyramid.

..... cm^2 [2]

8 The arrow points to a number.

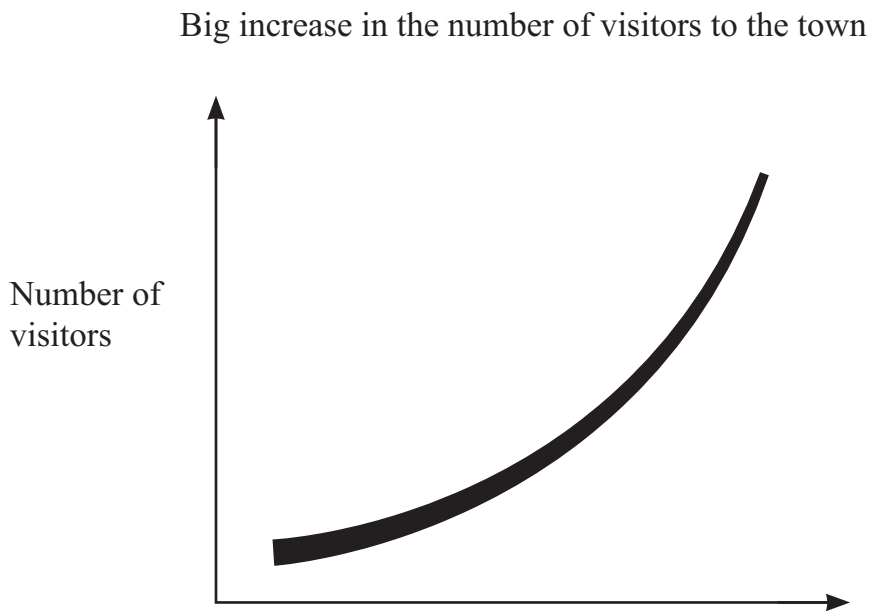


Draw a ring around the number the arrow points to.

$\sqrt{11}$ $\sqrt{22}$ $\sqrt{30}$ $\sqrt{35}$

[1]

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



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]

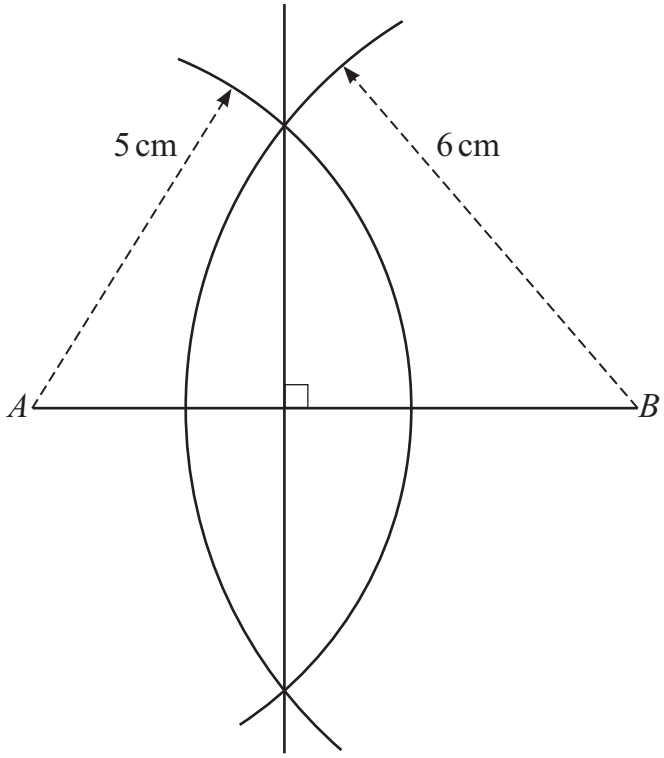
11 **(a)** Write 70 000 in standard form.

..... [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.

$w = \sqrt{y+2}$ $\quad$ $w = \sqrt{y}+2$ $\quad$ $w = (y+2)^2$ $\quad$ $w = y^2+2$

[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

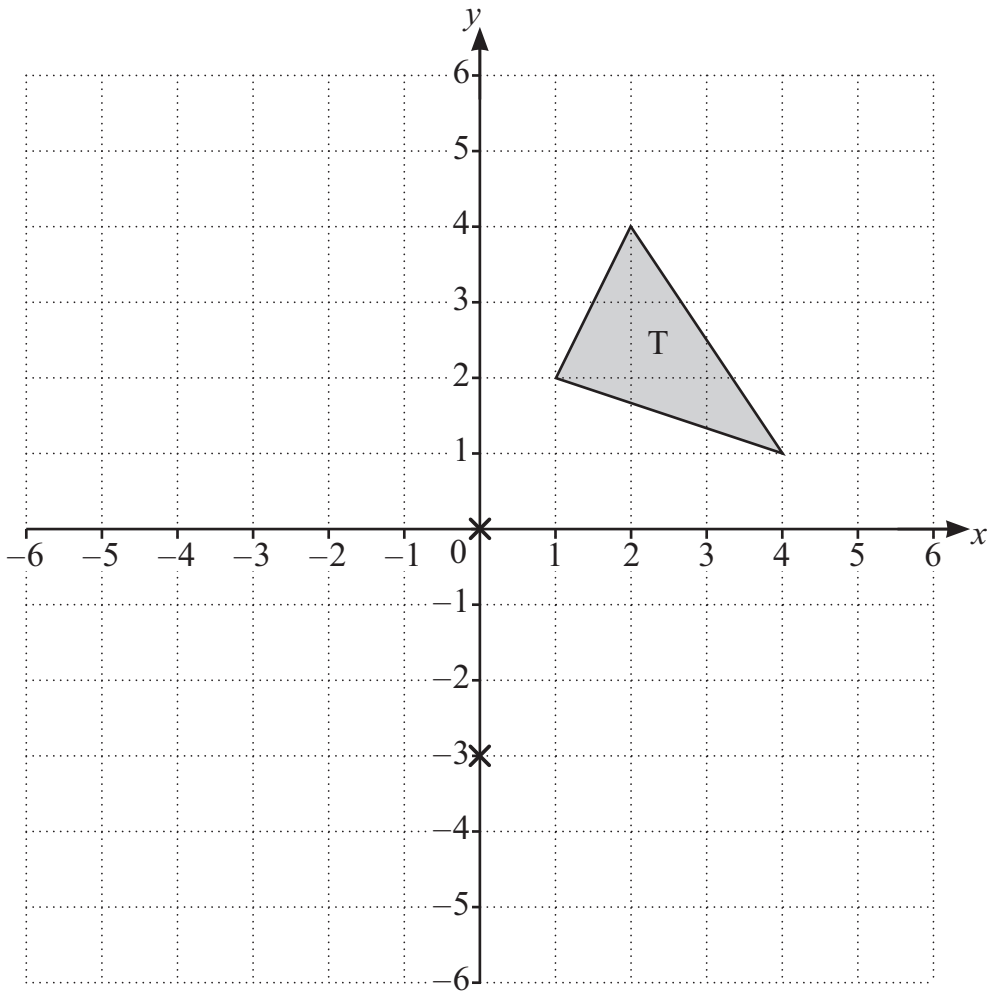
500 000 MB 32 GB 1 TB

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.

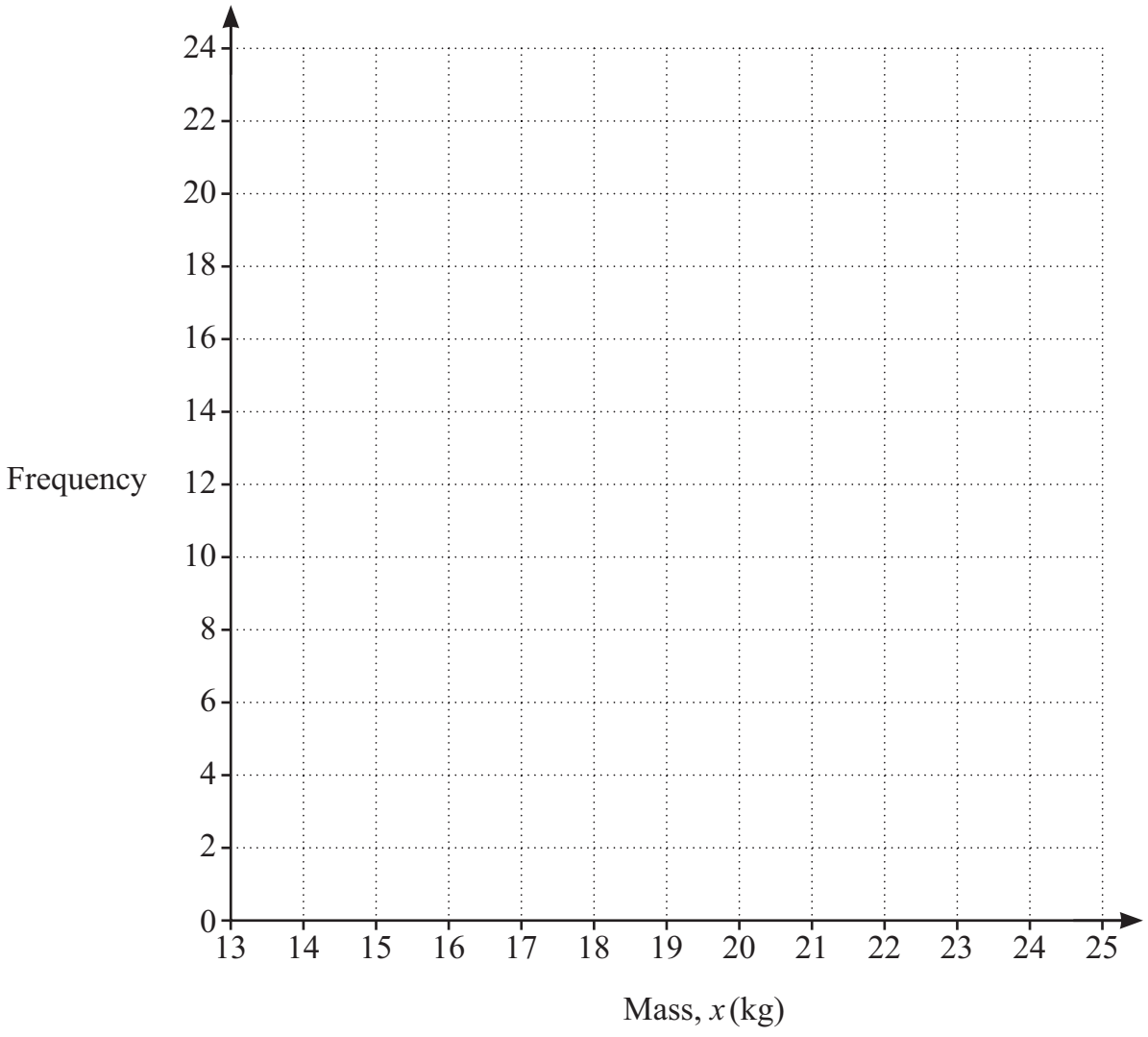
Mass, x (kg)	Frequency
$14 \leq x < 16$	10
$16 \leq x < 18$	7
$18 \leq x < 20$	13
$20 \leq x < 22$	20
$22 \leq x < 24$	20

(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 nth 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 nth 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.

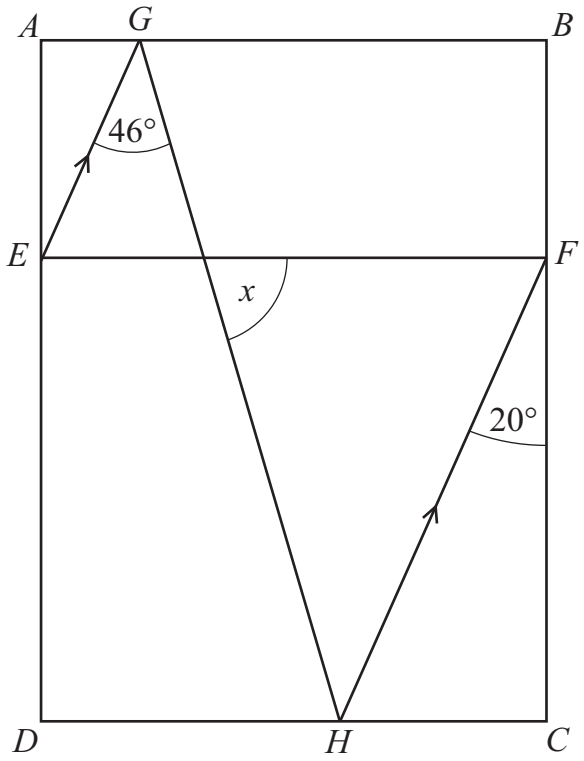
6	8				
4	0	6	7		
3	1	4	7	8	
5	2	5			

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 $ABCD$.



NOT TO SCALE

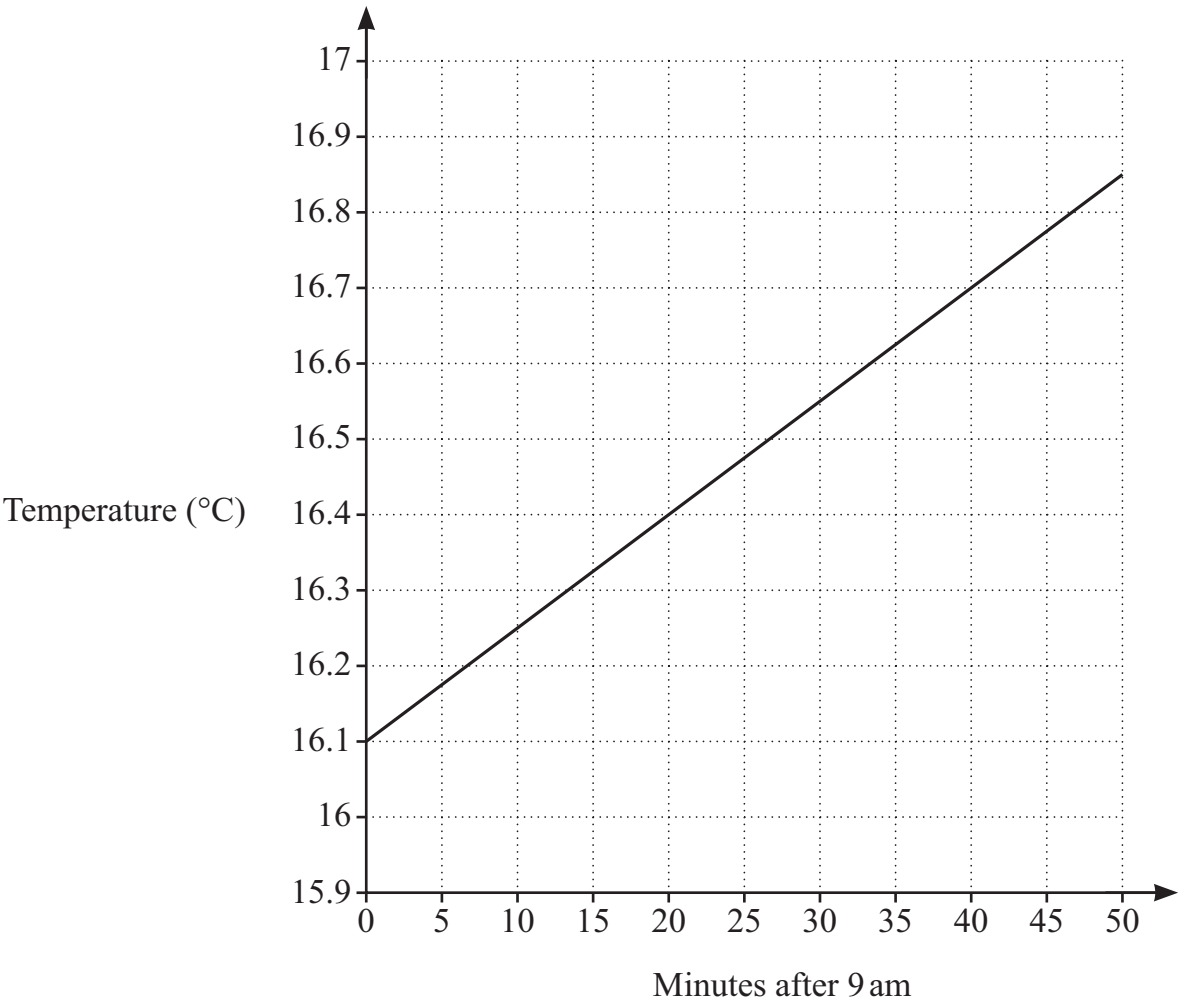
EF is parallel to AB.
EG is parallel to HF.

Calculate the size of the angle marked x.

$x =$ ..... ° [2]

22 Lily heats the water in her swimming pool.

The graph shows the temperature, in °C, of the water for the first 50 minutes after 9 am.

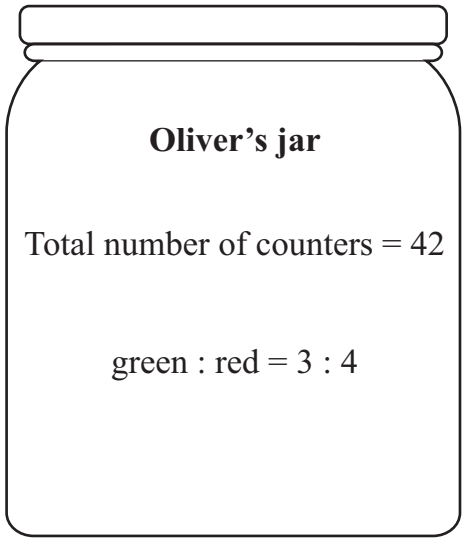


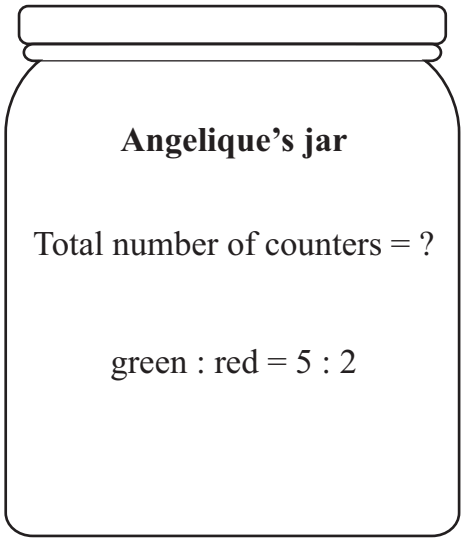
The temperature of the water continues to increase at this constant rate.

Find the temperature of the water at 11 am.

..... °C [2]

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



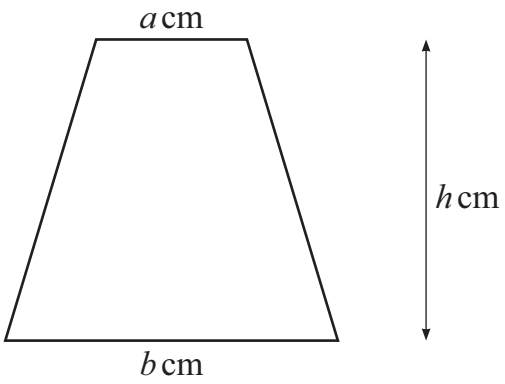


Angelique has the same number of **red** counters as Oliver.

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

..... [3]

24 The area of a trapezium is $24.5\,\text{cm}^2$.



NOT TO SCALE

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]