

Mock Grade 6

Maths

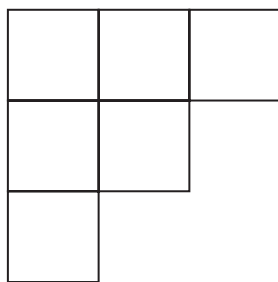
Booklet 3

Paper 1H

Non-Calculator

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- 1 The diagram shows a shape made from 6 identical squares.



The total area of the shape is 8992 cm^2

- (a) Find an estimate for the length of one side of each square.
Give your answer correct to the nearest whole number.

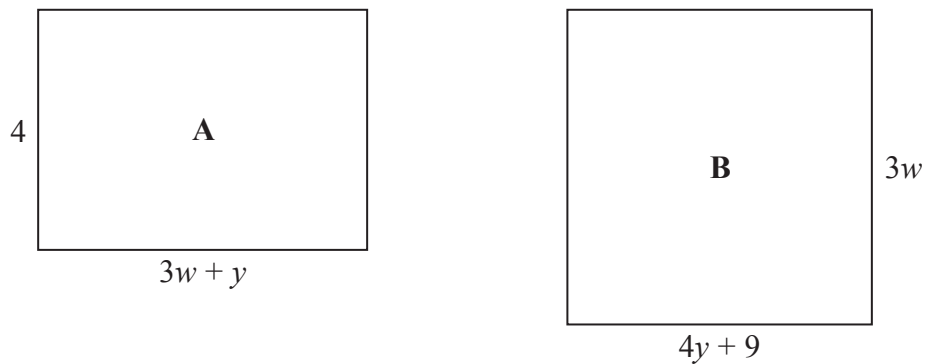
..... cm
(3)

- (b) Is your answer to part (a) an underestimate or an overestimate?
You must give a reason for your answer.

.....
.....
.....
(1)

(Total for Question 1 is 4 marks)

2 The diagram shows two rectangles, **A** and **B**.



All measurements are in centimetres.

The area of rectangle **A** is equal to the area of rectangle **B**.

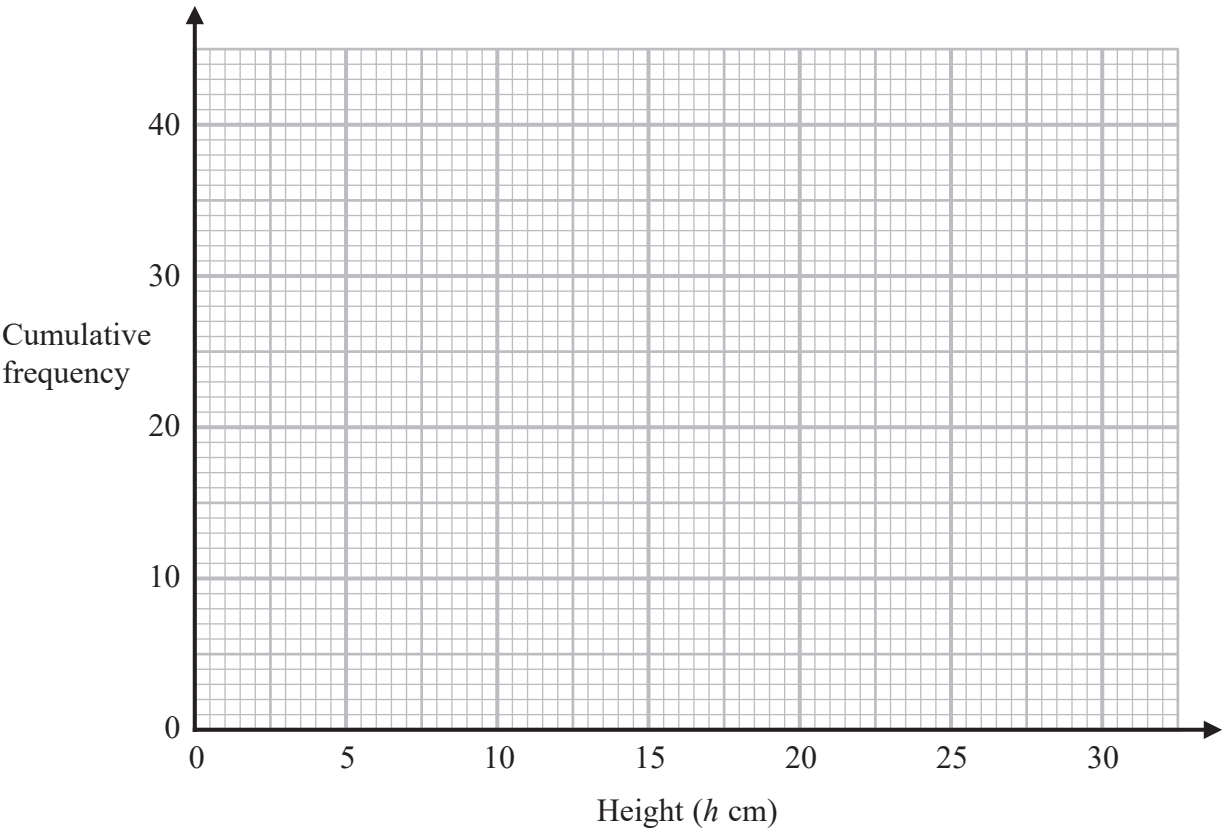
Find an expression for y in terms of w .

(Total for Question 2 is 4 marks)

3 The cumulative frequency table gives information about the heights, in cm, of 40 plants.

Height (h cm)	Cumulative Frequency
$0 < h \leq 5$	2
$0 < h \leq 10$	12
$0 < h \leq 15$	20
$0 < h \leq 20$	28
$0 < h \leq 25$	36
$0 < h \leq 30$	40

(a) On the grid, draw a cumulative frequency graph for this information.



(2)

(b) Use the graph to find an estimate for the interquartile range (IQR) of the plants.

..... cm
(2)

(Total for Question 3 is 4 marks)

4 Prove algebraically that the recurring decimal $0.\dot{1}2\dot{6}$ can be written as $\frac{14}{111}$

(Total for Question 4 is 3 mark)

- 5 Work out the value of $(8 \times 10^{-8}) \times (3 \times 10^5)$
Give your answer in standard form.

.....
(Total for Question 5 is 2 marks)

- 6 (a) Write down the value of $27^{\frac{1}{3}}$

Find the value of $\left(\frac{16}{25}\right)^{-\frac{3}{2}}$

.....
(1)

.....
(2)

(Total for Question 6 is 3 marks)

7 One electron has a mass of 9.1×10^{-31} grams.

(a) Work out an estimate for the mass of 1kg of electrons.

.....
(3)

(b) Is your answer to (a) an underestimate or an overestimate?
Give a reason for your answer.

.....
.....
(1)

(Total for Question 7 is 4 marks)

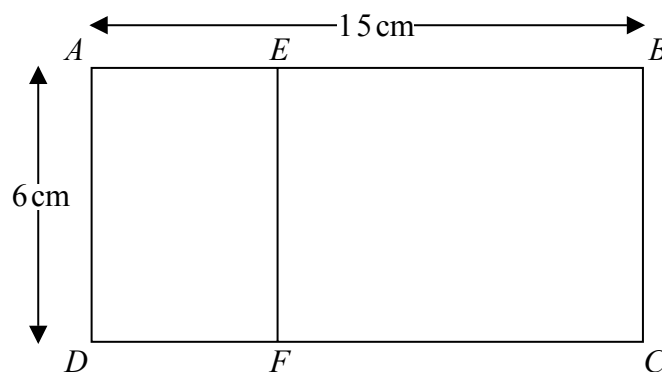
8 Pressure = $\frac{\text{force}}{\text{area}}$

Find the pressure exerted by a force of 600 newtons on an area of 30 cm^2 .
Give your answer in newtons/ m^2 .

..... newtons/ m^2

(Total for Question 8 is 2 marks)

9 Rectangle $ABCD$ is mathematically similar to rectangle $DAEF$.



$AB = 15 \text{ cm}$.

$AD = 6 \text{ cm}$.

Work out the area of rectangle $DAEF$.

..... cm^2

(Total for Question 9 is 3 marks)