GCSE Grade 6

Maths Booklet 3

Paper 1H
Non-Calculator

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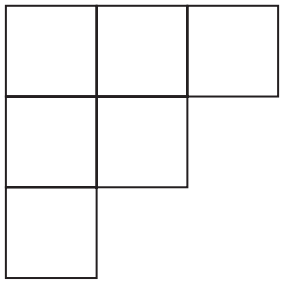
1 The diagram shows a shape made from 6 identical squares.



The total area of the shape is 5406 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.

.....

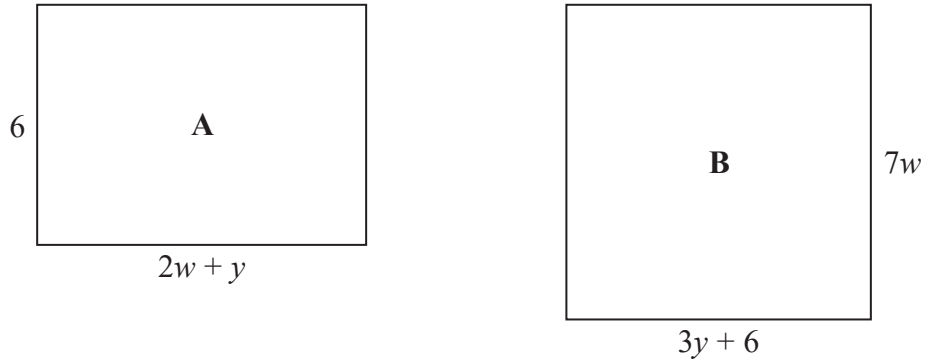
.....

.....

(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.

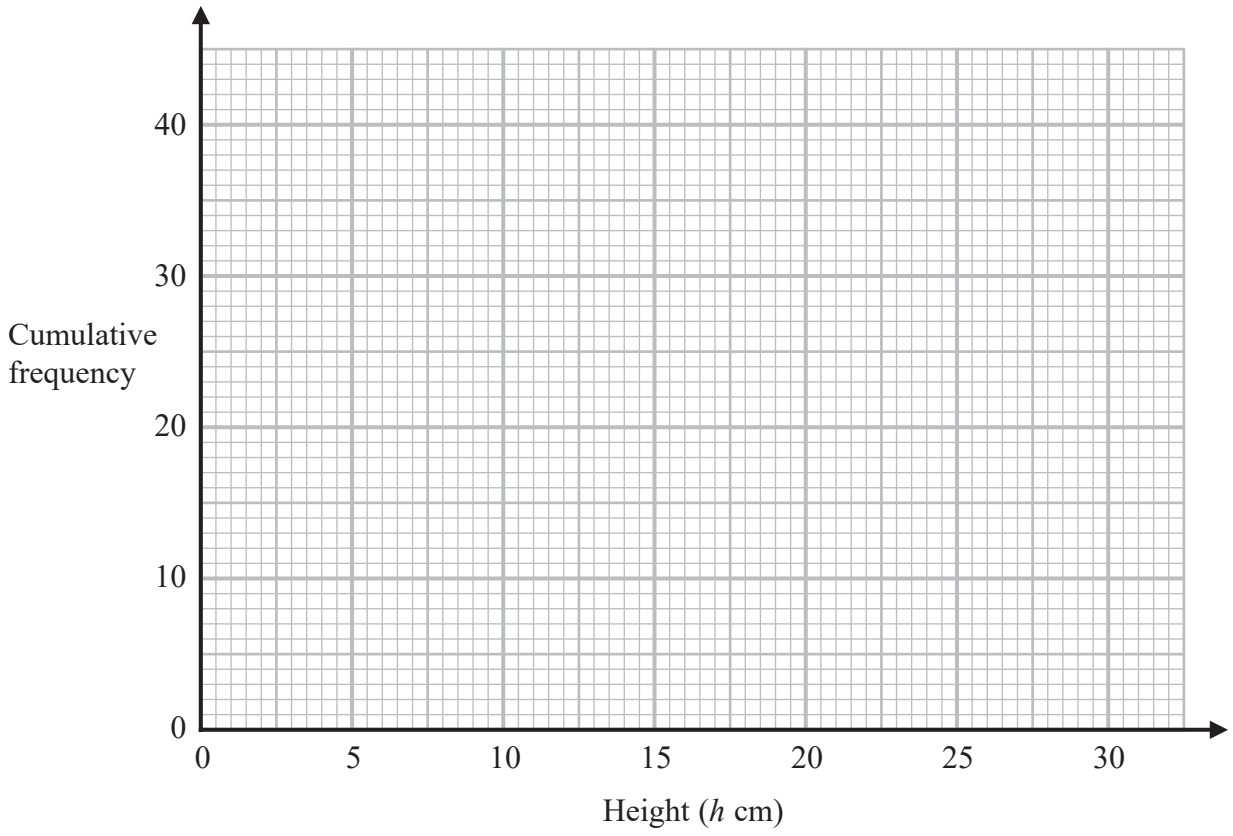
.....

(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
$0 < h \leqslant 5$	4
$0 < h \leqslant 10$	11
$0 < h \leqslant 15$	24
$0 < h \leqslant 20$	34
$0 < h \leqslant 25$	38
$0 < h \leqslant 30$	40

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



(2)

(b) Use the graph to find an estimate for the median height of the plants.

..... cm

(1)

(Total for Question 3 is 3 marks)

4 Ted is trying to change $0.4\dot{3}$ to a fraction.

Here is the start of his method.

$$x = 0.4\dot{3}$$

$$10x = 4.\dot{3}\dot{4}$$

$$10x - x = 4.\dot{3}\dot{4} - 0.4\dot{3}$$

Evaluate Ted's method so far.

.....

.....

.....

(Total for Question 4 is 1 mark)

5 Work out the value of $(9 \times 10^{-4}) \times (3 \times 10^{7})$
Give your answer in standard form.

.....

(Total for Question 5 is 2 marks)

6 (a) Write down the value of $64^{\frac{1}{2}}$

.....

(1)

(b) Find the value of $\left(\frac{8}{125}\right)^{-\frac{2}{3}}$

.....

(2)

(Total for Question 6 is 3 marks)

7 One uranium atom has a mass of 3.95×10^{-22} grams.

(a) Work out an estimate for the number of uranium atoms in 1 kg of uranium.

.....

(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)

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

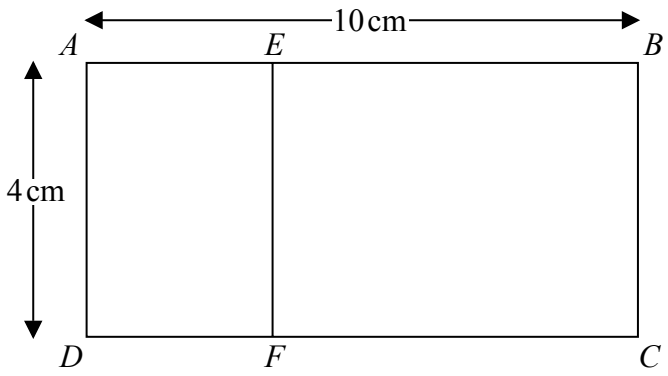
8 Pressure = $\frac{\text{force}}{\text{area}}$

Find the pressure extered by a force of 900 newtons on an area of 60 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 = 10 cm.
AD = 4 cm.

Work out the area of rectangle *DAEF*.

..... cm^2

(Total for Question 9 is 3 marks)