# GCSE Grade 6

# Maths Booklet 3

Paper 1H
Non-Calculator

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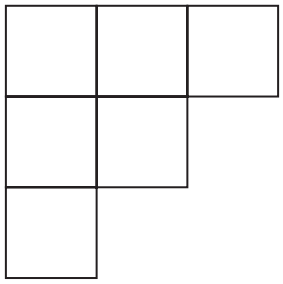
**1** The diagram shows a shape made from 6 identical squares.



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.

.....

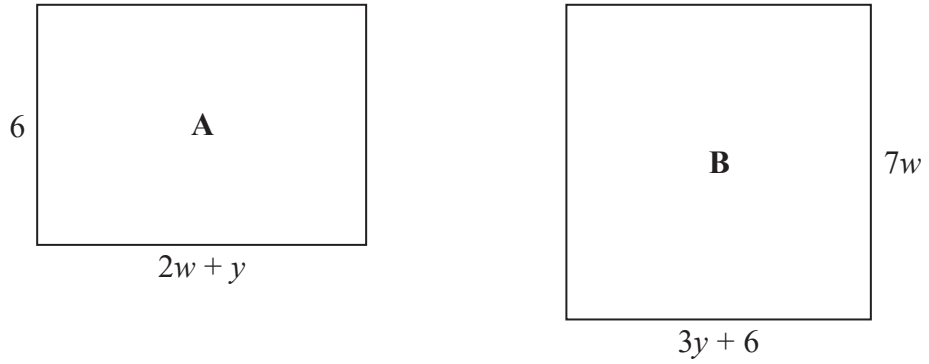
.....

.....

**(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 $w$.

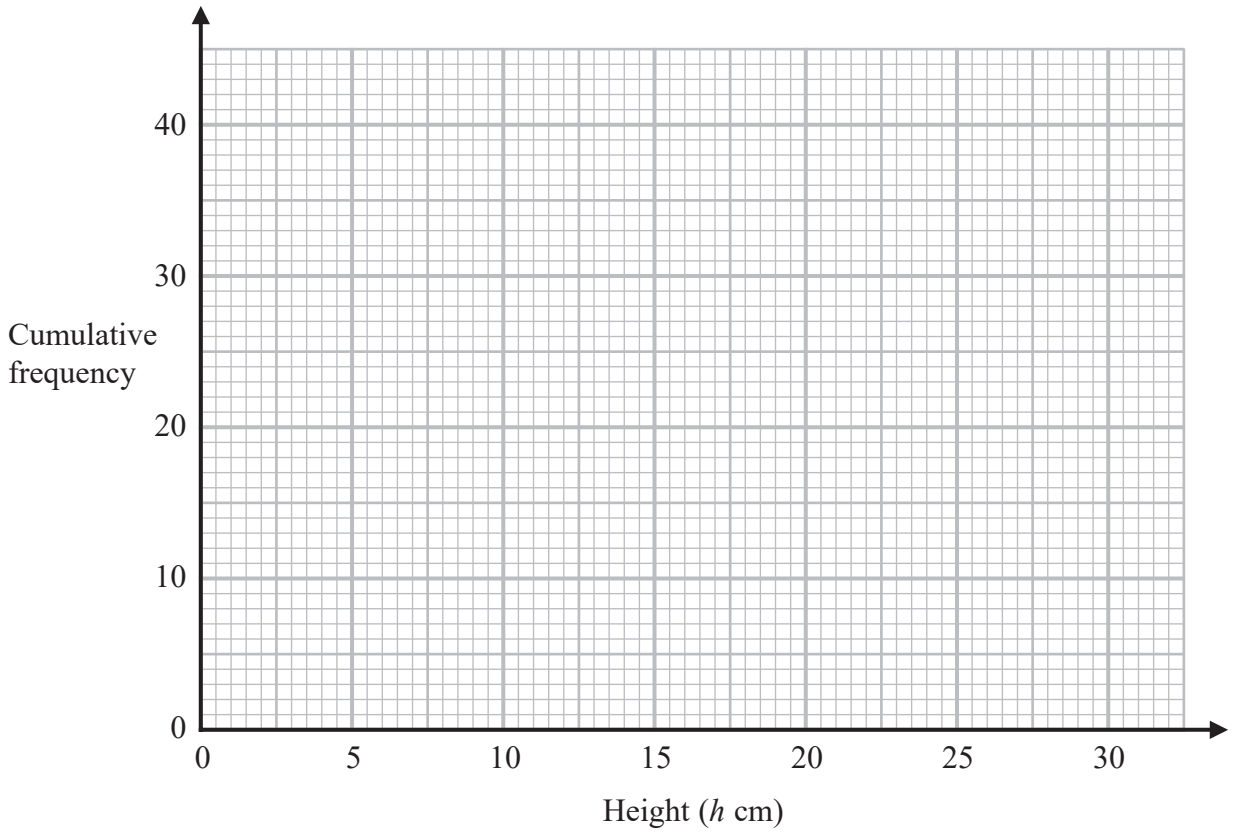
.....

**(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 $3.95 \times 10^{-22}$ 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

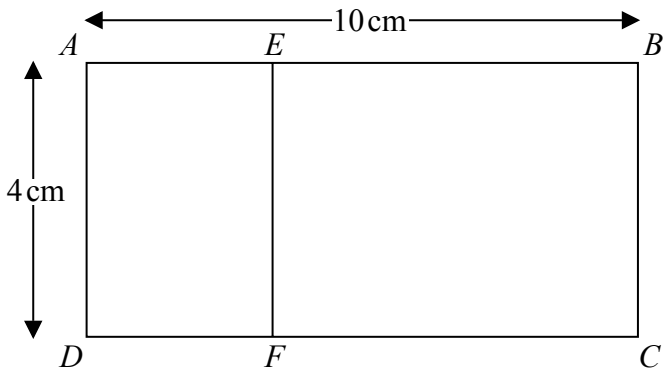
**8** Pressure = $\frac{\text{force}}{\text{area}}$

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)**