

Plans and Elevations

Maths **Level 2** Exam-style practice · 8 questions · 24 marks · Non-calculator

Remember

Plan view: looking straight down from above. **Front elevation:** looking from the front. **Side elevation:** looking from the side (usually the right).

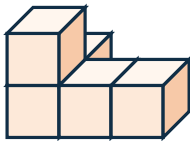
Each view is flat – a 2D outline. Draw squares for each cube face you can see; ignore depth.

Checks: the plan and front elevation are the same width; the plan and side elevation are the same depth; the two elevations are the same height.

Architects' plans use a scale (e.g. 1 : 50): 1 cm on the plan = 50 cm in real life.

Section A – Draw the views

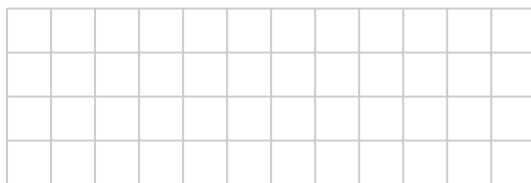
- This solid is made from 5 centimetre cubes.



Front

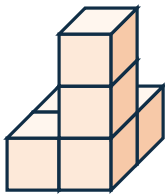
Side (right)

On the grid, draw (a) the plan view, (b) the front elevation, (c) the side elevation from the right.



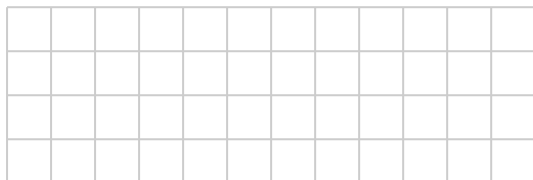
(6 marks)

2. This solid is made from 6 centimetre cubes.



Front

Draw the plan, front elevation and side elevation from the right.



(6 marks)

3. A solid has a plan that is a 3×2 rectangle and a front elevation that is a 3×1 rectangle. What is the solid? How many cubes is it made from? (2 marks)

Section B – Reading plans

4. An architect's plan of a kitchen is drawn at a scale of $1 : 50$. On the plan the room is 8.4 cm long and 6.2 cm wide. What are the real dimensions in metres? (2 marks)

5. On the same plan, a worktop is 1.8 m long in real life. How long is it on the drawing? (2 marks)

6. A front elevation of a house at $1 : 100$ shows the roof ridge 7.5 cm above the ground line. How tall is the house? (1 mark)

7. A garden shed is a cuboid 2.4 m long, 1.8 m wide and 2 m high, with a sloping roof rising to 2.5 m at the back. Sketch the side elevation and label its dimensions. (3 marks)

8. Explain why a cylinder standing upright has a plan view that is a circle but a front elevation that is a rectangle. (2 marks)

Plans and Elevations – Answers

Level 2 · Working shown so you can check your method, not just the final number.

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Section A

1. (a) Plan: an L of 4 squares – a row of 3 with one square attached behind the left-hand square. (b) Front: a row of 3 squares with one square on top of the left-hand one. (c) Side (right): 2 squares wide (front and back) with one extra square on top of the front one – an L of 3 squares.
2. Plan: a 2×2 square of 4 squares. Front: 2 squares wide, the right column 3 high, the left column 1 high (4 squares). Side from the right: 2 squares wide (front and back), the front column 3 high, the back column 1 high.
3. A cuboid one cube high, 3 long and 2 wide – **6 cubes**.

Section B

4. $8.4 \times 50 = 420 \text{ cm} = \mathbf{4.2 \text{ m}}$; $6.2 \times 50 = 310 \text{ cm} = \mathbf{3.1 \text{ m}}$.
5. $180 \div 50 = \mathbf{3.6 \text{ cm}}$.
6. $7.5 \times 100 = 750 \text{ cm} = \mathbf{7.5 \text{ m}}$.
7. A trapezium-ish shape: 1.8 m wide (the depth of the shed), 2 m high at the front edge, 2.5 m at the back, with the sloping roof line joining them.
8. From above you see the circular top only. From the front you see the full height and the full width (diameter), which makes a rectangle.

Where Level 2 students lose marks on this topic

- Drawing the view in 3D – a plan or elevation is flat; no slanted lines.
- Drawing the side elevation from the left when the question says the right (they are mirror images).
- Forgetting hidden cubes: a cube behind another still adds to the plan view.