JRA Tutors
Private tuition and small online Study Pods

Plans and Elevations

Grade 4 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (45 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 67 marks.

Warm-up

1 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). How many cubes are used altogether? **[2 marks]**

Plan				
Row 1	3	2	2	2
Row 2	3	1	1	2

Answer _____

2 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). Work out the volume of the solid. **[2 marks]**

Plan			
Row 1	0	1	3
Row 2	3	2	0
Row 3	2	0	0

Answer _____

3 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). What is the greatest number of cubes stacked in one place? **[1 mark]**

Plan				
Row 1	0	2	3	1
Row 2	1	3	1	3

Answer _____

4 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). How many columns of cubes are there that are not empty? **[2 marks]**

Plan				
Row 1	1	0	2	1
Row 2	2	1	0	3
Row 3	1	3	1	1

Answer _____

5 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). Work out the area of the plan view (the footprint). **[2 marks]**

Plan			
Row 1	0	0	3
Row 2	2	1	2

Answer _____

Core

6 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). Write down the heights, from left to right, of the front elevation (viewed from the front). **[3 marks]**

Plan				
Row 1	1	3	2	1
Row 2	1	2	1	1

Answer _____

7 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). Write down the heights of the side elevation (viewed from the left side, front row first). **[3 marks]**

Plan				
Row 1	3	2	3	2
Row 2	2	2	1	1

Answer _____

8 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). What is the area of the front elevation? **[3 marks]**

Plan				
Row 1	1	0	2	1
Row 2	0	1	3	0
Row 3	1	2	1	0

Answer _____

9 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). What is the area of the side elevation? **[3 marks]**

Plan			
Row 1	2	1	3
Row 2	2	2	2

Answer _____

10 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). A cube is added on top of the tallest stack. How many cubes are there now? **[2 marks]**

Plan			
Row 1	1	1	1
Row 2	0	3	1
Row 3	2	1	1

Answer _____

Stretch

11 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). Each cube has an edge of 2 cm. Work out the volume of the solid. **[3 marks]**

Plan			
Row 1	1	1	2
Row 2	0	1	2
Row 3	1	3	0

Answer _____

12 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). Work out the total surface area of the solid, including the bottom. **[5 marks]**

Plan				
Row 1	0	1	1	2
Row 2	1	3	2	1

Answer _____

13 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). How many cubes would be needed to fill the shape out to a cuboid 2 by 4 by 3? **[4 marks]**

Plan				
Row 1	1	1	1	2
Row 2	2	2	3	3

Answer _____

14 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). What percentage of the cuboid 3 by 4 by 3 is filled? Give your answer to 1 decimal place. **[5 marks]**

Plan				
Row 1	1	0	1	0
Row 2	0	2	0	3
Row 3	2	0	2	1

Answer _____

15 The table is the plan view of a solid made from 1 cm cubes. Each number shows how many cubes are stacked in that position (Row 1 is at the front). The cubes are painted on the outside (including the bottom). Work out the painted area. **[5 marks]**

Plan			
Row 1	2	0	2
Row 2	2	2	2

Answer _____

Challenge

16 A solid has a front elevation that is a 3 by 2 rectangle, a side elevation that is a 2 by 2 square, and a plan that is a 3 by 2 rectangle. What solid is it, and what is its volume? **[5 marks]**

Answer _____

17 The plan of a solid is a square of side 4 cm. The front and side elevations are both triangles with base 4 cm and height 5 cm. What is the solid, and what is its volume? **[5 marks]**

Answer _____

18 The front elevation of a solid is a circle and the plan is a circle. What could the solid be? **[3 marks]**

Answer _____

19 A solid has a plan view that is a circle and a front elevation that is a rectangle 6 cm wide and 10 cm high. What is it and what is its volume to 3 s.f.? **[5 marks]**

Answer _____

20 The front elevation of a cuboid is a 4 cm by 3 cm rectangle and its side elevation is a 5 cm by 3 cm rectangle. Work out its volume. **[4 marks]**

Answer _____