4.17 Plans and Elevations: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

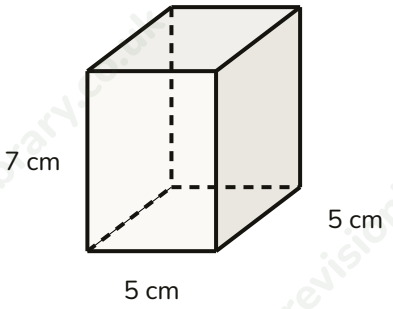
1 Which elevation shows the height and the depth (sometimes called thickness) of an object?

(Total for Question 1 is 1 mark)

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2 A cuboid has a square base 5 cm by 5 cm and height 7 cm.
What is the shape of the side elevation (the view from one side)?

Diagram NOT accurately drawn



(Total for Question 2 is 1 mark)

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3 A 3D solid is viewed in three different ways, labelled A, B and C.

A: looking straight down at the solid from directly above.

B: looking horizontally at the solid from the front.

C: looking horizontally at the solid from one side.

(a) Write down the letter, A, B or C, that gives the plan of the solid. **(1)**

.....

(b) Write down the letter, A, B or C, that gives the front elevation of the solid. **(1)**

.....

(c) Write down the letter, A, B or C, that gives the side elevation of the solid. **(1)**

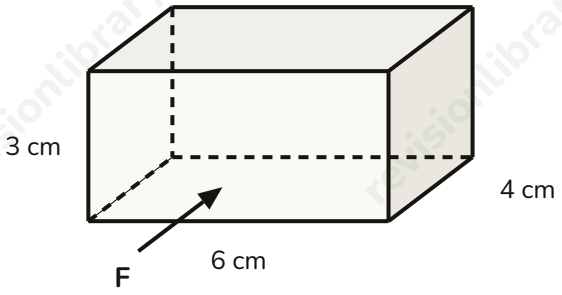
.....

(Total for Question 3 is 3 marks)

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4 A cuboid has length 6 cm, width 4 cm and height 3 cm. It stands on a table. Arrow F points towards the front face of the cuboid.

Diagram NOT accurately drawn



(a) Write down the dimensions of the front elevation of the cuboid. **(1)**

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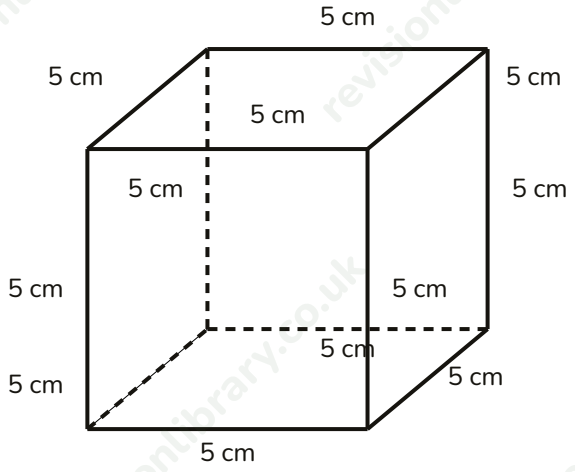
(b) Write down the dimensions of the plan of the cuboid. **(1)**

.....

(Total for Question 4 is 2 marks)

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5 A solid cube has edges of length 5 cm. State whether each statement is True or False.



(a) The front elevation of the cube is a square measuring 5 cm by 5 cm. **(1)**

(b) The plan of the cube is a rectangle that is not a square. **(1)**

(c) The front elevation and the side elevation of the cube are exactly the same shape and size as each other. **(1)**

(Total for Question 5 is 3 marks)

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6 A solid has plan dimensions 9 cm by 4 cm and an overall height 7 cm. The width across the front is 9 cm. State the dimensions (width and height) shown on the front elevation and the dimensions (depth and height) shown on the side elevation.

(Total for Question 6 is 2 marks)

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7 Look at this description of a solid and its three elevations.

- Plan (view from above): a 6 cm by 4 cm rectangle with a 2 cm by 2 cm square removed from one corner.
- Front elevation: a rectangle 6 cm by 3 cm with a 2 cm square notch at the top right.
- Side elevation: a rectangle 4 cm by 3 cm.

Which of these statements must be true? Tick the correct answer.

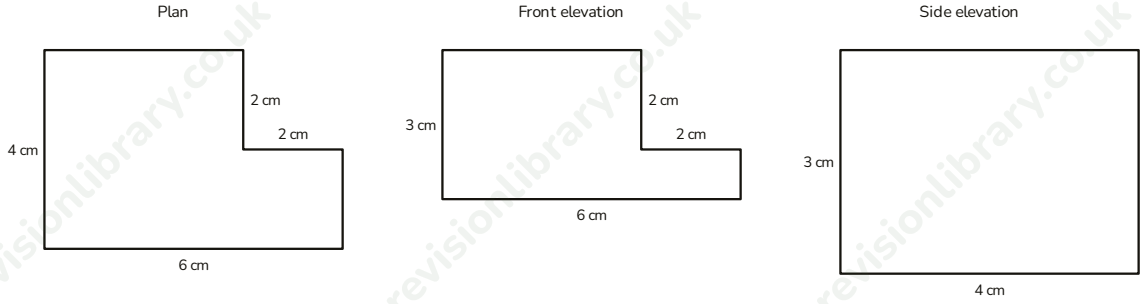
A. The solid has overall height 3 cm.

B. The solid has a full 2 cm cube removed from its corner.

C. The plan shows a hole all the way through the solid.

D. The front elevation shows a triangular shape.

Diagram NOT accurately drawn



- ☐ A
- ☐ B
- ☐ C
- ☐ D

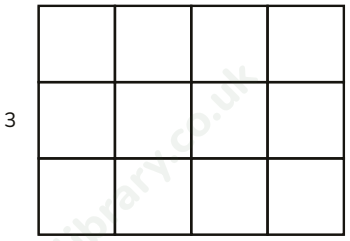
(Total for Question 7 is 1 mark)

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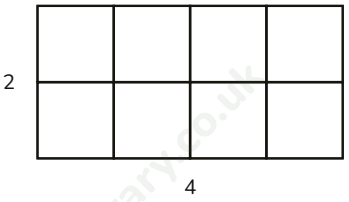
8 A model is a filled cuboid made from cubes of side 1 cm. Its plan (view from above) is a 3 by 4 rectangle. The front elevation shows two rows of cubes: the bottom row 4 cubes long, the top row 4 cubes long. The side elevation shows a column of height 2 and width 3.
Work out how many small 1 cm cubes are used in the model.

Diagram NOT accurately drawn

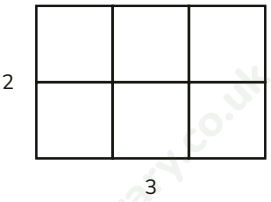
plan



front elevation



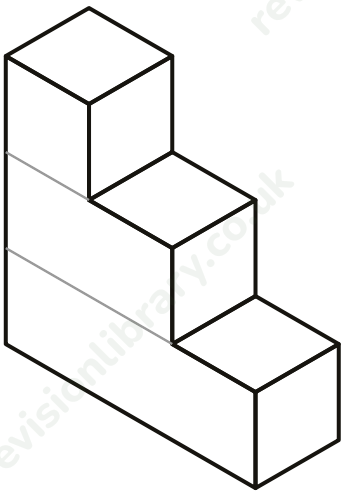
side elevation



(Total for Question 8 is 3 marks)

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9 A staircase-shaped solid is built from 1 cm cubes. Three vertical stacks of cubes stand in a single row, one directly behind the next, each stack 1 cube wide. The back stack is 3 cubes high, the middle stack is 2 cubes high, and the front stack is 1 cube high.



(a) Draw the plan of the solid. **(1)**

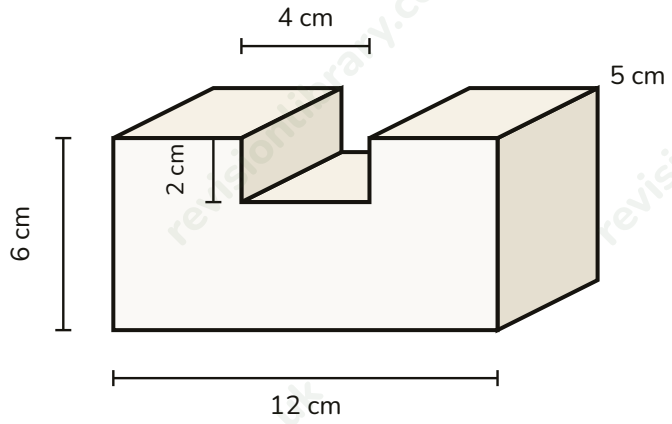
(b) Draw the side elevation of the solid, viewed from the side so the steps can be seen. **(2)**

(Total for Question 9 is 3 marks)

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10 A block of cheese is a cuboid 12 cm long, 6 cm high and 5 cm deep. A rectangular notch, 4 cm wide and 2 cm high, has been cut away from the top of the front face. The notch runs the full depth of the cheese and does not touch either end of the block.
Work out the area of the front elevation of the cheese (the shape you would see looking directly at the front face, including the notch).

Diagram NOT accurately drawn



(Total for Question 10 is 4 marks)

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Mark scheme · 4.17 Plans and Elevations: 30-minute Pack

Question 1

side elevation cao **B1**

Answer: Side elevation.

Question 2

rectangle cao **B1**

Answer: Rectangle (5 cm by 7 cm).

Question 3

(a) A cao **B1**

(a) Answer: A

(b) B cao **B1**

(b) Answer: B

(c) C cao **B1**

(c) Answer: C

Question 4

(a) 6 cm by 3 cm oe **B1**

(a) Answer: 6 cm x 3 cm

(b) 6 cm by 4 cm oe **B1**

(b) Answer: 6 cm x 4 cm

Question 5

(a) True cao **B1**

(a) Answer: True

(b) False cao **B1**

(b) Answer: False

(c) True cao **B1**

(c) Answer: True

Question 6

front elevation shows 9 cm by 7 cm (width and height) oe **M1**

side elevation shows 4 cm by 7 cm (depth and height) cao **A1**

Answer: Front elevation: 9 cm by 7 cm. Side elevation: 4 cm by 7 cm.

Question 7

A cao **B1**

Answer: A

Question 8

find plan area 3 x 4 = 12 (use plan to get number of stacks) or show 3 by 4 **M1**

use elevation height 2 to get total cubes 12 x 2 = 24 **M1**

24 cao **A1**

Answer: 24

Question 9

(a) a row of 3 unit squares (1 square wide, 3 squares deep) - correct footprint **B1**

(a) Answer: A 1 by 3 rectangle (3 unit squares in a row).

(b) correct step shape decreasing 3, 2, 1 from back to front **B1**

(b) correct overall dimensions: 3 squares wide (depth), maximum height 3 squares **B1**

(b) Answer: A staircase profile 3 squares wide with heights (back to front) 3, 2, 1 unit squares.

Question 10

12 x 6 (= 72) **M1**

4 x 2 (= 8) **M1**

72 - 8 (dep on both previous M marks) **M1**

64 cm² cao **A1**

Answer: 64 cm^2

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