

GCSE MATHS • GRADE 4

MATHS



MODEL ANSWERS

PLANS AND ELEVATIONS

SCORE

/92

PERCENTAGE

%

STEM UP

- 1 A solid is a cylinder standing on its circular base.
Write down the name of the shape of the side elevation of the solid.

Looking from the side, the cylinder has a rectangle side elevation

rectangle

1 / 1

- 2 The diagram shows the plan of a solid made from centimetre cubes.
The number in each square is the number of cubes stacked there (a blank square has no cubes).
The front of the solid is the bottom of the diagram.
How many cubes are used to make the solid?

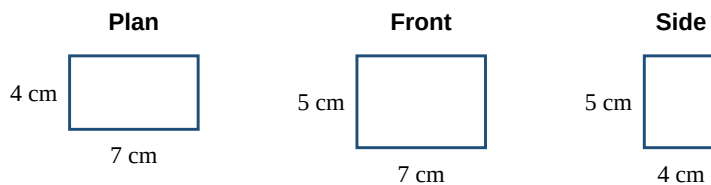
	1	1
3	1	1

Add the numbers: $1 + 1 + 3 + 1 + 1 = 7$

7

1 / 1

- 3 The diagram shows the plan, front elevation and side elevation of a cuboid.
Work out the volume of the cuboid. Diagram NOT accurately drawn.



Length 7, width 4, height 5
 $7 \times 4 \times 5 = 140$

140 cm³

1 / 1

- 4 A solid is a triangular prism lying on one of its rectangular faces, with a triangular end facing the front.

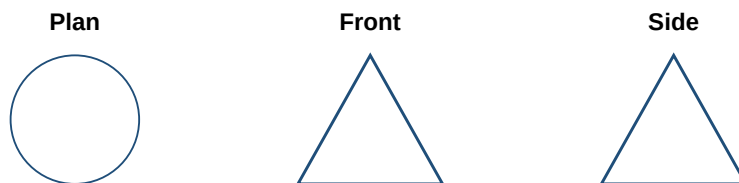
Write down the name of the shape of the front elevation of the solid.

Looking from the front, the triangular prism has a triangle front elevation

triangle

/ 1

- 5 The diagram shows the plan, front elevation and side elevation of a solid.
Write down the mathematical name of the solid.

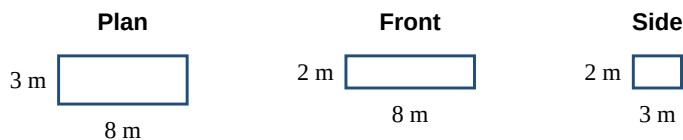


Plan is a circle, front elevation is a triangle, side elevation is a triangle: a cone

cone

/ 1

- 6 The diagram shows the plan, front elevation and side elevation of a cuboid.
Work out the volume of the cuboid. Diagram NOT accurately drawn.



*Length 8, width 3, height 2
 $8 \times 3 \times 2 = 48$*

48 m³

/ 1

- 7 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.
In the space below, draw a sketch of the solid shape. Give the dimensions of the solid on your sketch.

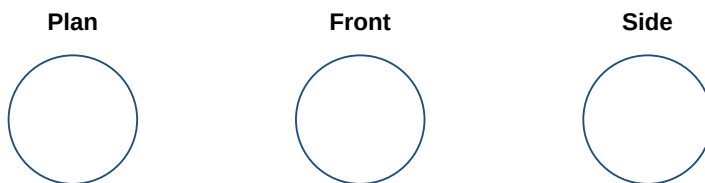


Plan, front elevation and side elevation each give two of the three dimensions (read them from the grid squares) Sketch the solid and label the dimensions

A cone with base diameter 4 cm (radius 2 cm) and height 2 cm

/ 1

- 8 The diagram shows the plan, front elevation and side elevation of a solid.
Write down the mathematical name of the solid.

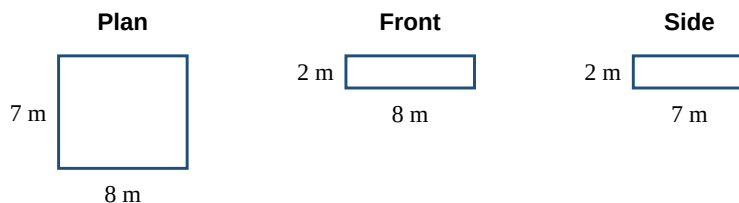


Plan is a circle, front elevation is a circle, side elevation is a circle: a sphere

sphere

/ 1

- 9 The diagram shows the plan, front elevation and side elevation of a cuboid.
Work out the volume of the cuboid. Diagram NOT accurately drawn.

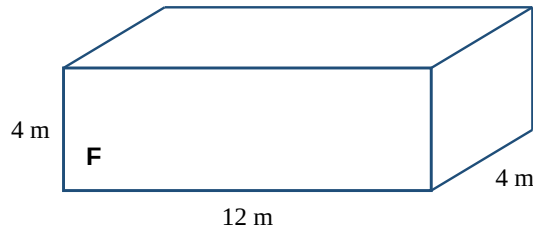


*Length 8, width 7, height 2
 $8 \times 7 \times 2 = 112$*

112 m³

/ 1

- 10 The diagram shows a cuboid.
The front of the cuboid is marked F. The side elevation is viewed from the right.
Work out the area of the plan of the cuboid. Diagram NOT accurately drawn.

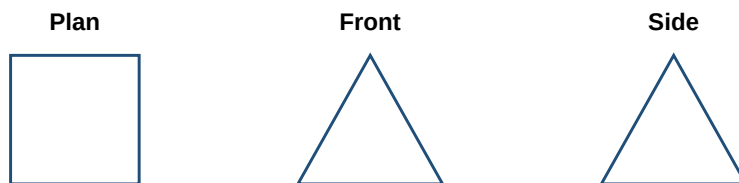


The plan is a rectangle $12 \times 4 = 48$

48 m²

1 / 1

- 11 The diagram shows the plan, front elevation and side elevation of a solid.
Write down the mathematical name of the solid.

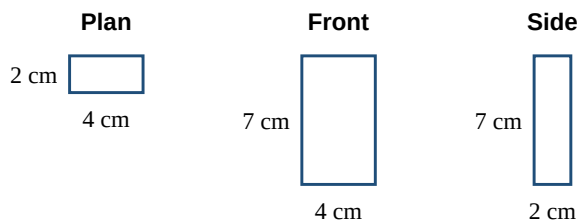


Plan is a square, front elevation is a triangle,
side elevation is a triangle: a square-based
pyramid

square-based pyramid

1 / 1

- 12 The diagram shows the plan, front elevation and side elevation of a cuboid.
Work out the volume of the cuboid. Diagram NOT accurately drawn.

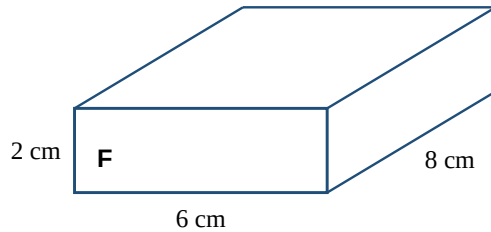


Length 4, width 2, height 7
 $4 \times 2 \times 7 = 56$

56 cm³

1 / 1

- 13 The diagram shows a cuboid.
The front of the cuboid is marked F. The side elevation is viewed from the right.
Work out the area of the plan of the cuboid. Diagram NOT accurately drawn.

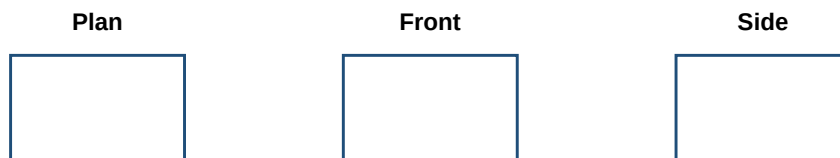


The plan is a rectangle $6 \times 8 = 48$

48 cm²

1 / 1

- 14 The diagram shows the plan, front elevation and side elevation of a solid.
Write down the mathematical name of the solid.



Plan is a rectangle, front elevation is a rectangle, side elevation is a rectangle; a cuboid

cuboid

1 / 1

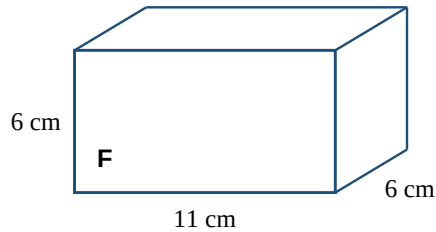
- 15 A solid is a cuboid with a length of 4 m, a width of 5 m and a height of 3 m.
Hannah draws the side elevation of the cuboid using a scale of 2 cm to 1 m.
Work out the dimensions of the rectangle that she draws.

2 cm represents 1 m, so multiply each
dimension by 2: $5 \times 2 = 10$
 $3 \times 2 = 6$

10 cm by 6 cm

1 / 1

- 16 The diagram shows a cuboid.
The front of the cuboid is marked F. The side elevation is viewed from the right.
Work out the area of the plan of the cuboid. Diagram NOT accurately drawn.

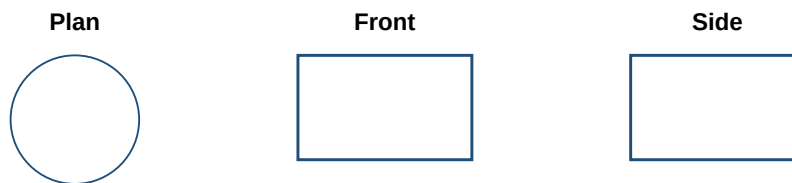


The plan is a rectangle $11 \times 6 = 66$

66 cm²

1 / 1

- 17 The diagram shows the plan, front elevation and side elevation of a solid.
Write down the mathematical name of the solid.

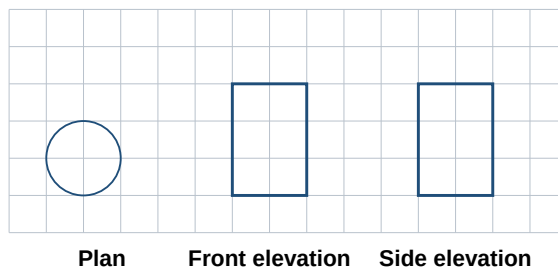


Plan is a circle, front elevation is a rectangle,
side elevation is a rectangle: a cylinder

cylinder

1 / 1

- 18 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.
In the space below, draw a sketch of the solid shape. Give the dimensions of the solid on your sketch.



Plan, front elevation and side elevation
each give two of the three dimensions
(read them from the grid squares)
Sketch the solid and label the
dimensions

A cylinder with diameter 2 cm
(radius 1 cm) and height 3 cm

1 / 1

- 19 A solid is a cuboid with a length of 3 m, a width of 6 m and a height of 7 m.
Hannah draws the plan of the cuboid using a scale of 2 cm to 1 m.
Work out the dimensions of the rectangle that she draws.

*2 cm represents 1 m, so multiply each dimension by 2: $3 \times 2 = 6$
 $6 \times 2 = 12$*

6 cm by 12 cm

1 / 1

- 20 The diagram shows the plan of a solid made from centimetre cubes.
The number in each square is the number of cubes stacked there (a blank square has no cubes).
The front of the solid is the bottom of the diagram.
Write down the height of each column in the front elevation, from left to right.

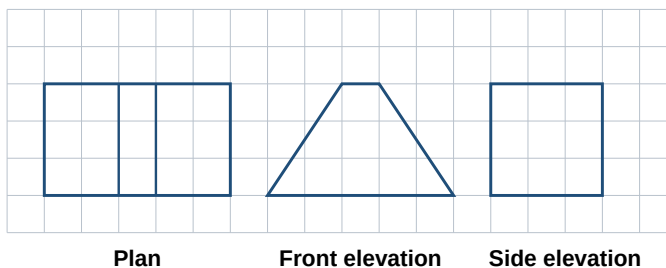
		1
2	3	2

Looking from the front, each column shows its tallest stack: 2, 3, 2

2, 3, 2

1 / 1

- 21 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.
In the space below, draw a sketch of the solid shape. Give the dimensions of the solid on your sketch.

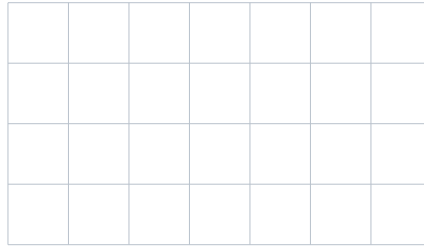
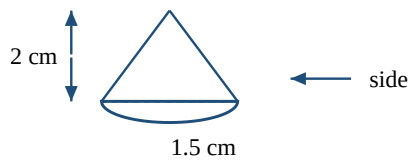


*Plan, front elevation and side elevation each give two of the three dimensions (read them from the grid squares)
Sketch the solid and label the dimensions*

A prism whose cross-section is a trapezium with parallel sides 5 cm and 1 cm and height 3 cm; the prism is 3 cm long

2 / 2

- 22 The diagram shows a cone with radius 1.5 cm and perpendicular height 2 cm. On the centimetre grid below, draw the plan and the side elevation of the cone.



*Plan is the view from above
the side elevation is the view from the right*

Plan: a circle of radius 1.5 cm (diameter 3 cm). Side elevation: an isosceles triangle with base 3 cm and height 2 cm

2 / 2

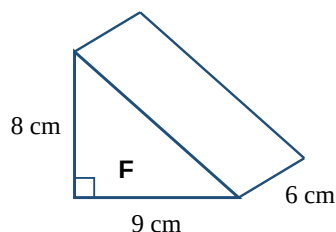
- 23 A solid is a cuboid with a length of 6 m, a width of 5 m and a height of 3 m. Hannah draws the front elevation of the cuboid using a scale of 3 cm to 1 m. Work out the dimensions of the rectangle that she draws.
(The front elevation of the cuboid uses its length and height. The side elevation is viewed from the right.)

Multiply each dimension by 3: $6 \times 3 = 18$ and $3 \times 3 = 9$

18 cm by 9 cm

2 / 2

- 24 The diagram shows a triangular prism. The front of the prism is marked F. The side elevation is viewed from the right. Work out the area of the front elevation of the prism. Diagram NOT accurately drawn.

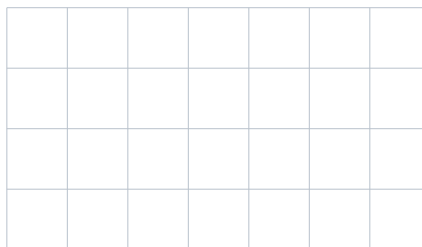
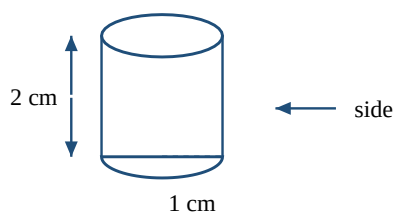


*Front elevation is a right-angled triangle:
 $\frac{1}{2} \times 9 \times 8 = 36$*

36 cm²

2 / 2

- 25 The diagram shows a cylinder with radius 1 cm and height 2 cm.
On the centimetre grid below, draw the plan and the side elevation of the cylinder.



*Plan is the view from above
the side elevation is the view from the right*

*Plan: a circle of radius 1 cm
(diameter 2 cm). Side elevation: a
rectangle 2 cm wide and 2 cm high*

2 / 2

- 26 A solid is a cuboid with a length of 4.5 m, a width of 3 m and a height of 4 m.
Hannah draws the side elevation of the cuboid using a scale of 1 cm to 1 m.
Work out the dimensions of the rectangle that she draws.
(The side elevation of the cuboid uses its width and height. The side elevation is viewed from the right.)

Multiply each dimension by 1: $3 \times 1 = 3$ and $4 \times 1 = 4$

3 cm by 4 cm

2 / 2

- 27 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.
In the space below, draw a sketch of the solid shape. Give the dimensions of the solid on your sketch.



Plan

Front elevation

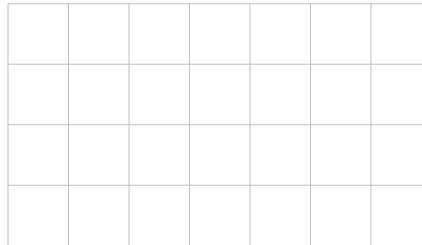
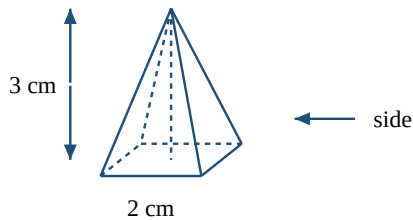
Side elevation

*Plan, front elevation and side
elevation each give two of the
three dimensions (read them from
the grid squares)
Sketch the solid and label the
dimensions*

*An L-shaped prism: the L has overall width 4 cm and
height 4 cm, the tall part is 3 cm wide and the lower
step is 2 cm high; the prism is 2 cm deep*

2 / 2

- 28 The diagram shows a square based pyramid with a base of side 2 cm and a perpendicular height of 3 cm.
On the centimetre grid below, draw the plan and the side elevation of the square based pyramid.



Plan is the view from above
the side elevation is the view from the right

Plan: a square 2 cm by 2 cm with both diagonals drawn. Side elevation: a triangle with base 2 cm and height 3 cm

2 / 2

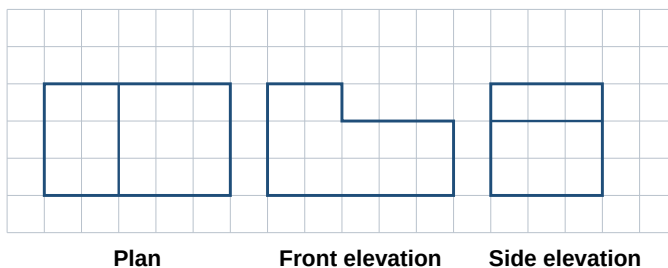
- 29 A solid is a cuboid with a length of 8.5 m, a width of 8 m and a height of 4 m. Hannah draws the side elevation of the cuboid using a scale of 2 cm to 1 m. Work out the dimensions of the rectangle that she draws.
(The side elevation of the cuboid uses its width and height. The side elevation is viewed from the right.)

Multiply each dimension by 2: $8 \times 2 = 16$ and $4 \times 2 = 8$

16 cm by 8 cm

2 / 2

- 30 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.
In the space below, draw a sketch of the solid shape. Give the dimensions of the solid on your sketch.

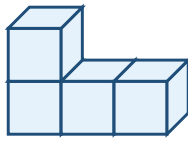


Plan, front elevation and side elevation each give two of the three dimensions (read them from the grid squares)
Sketch the solid and label the dimensions

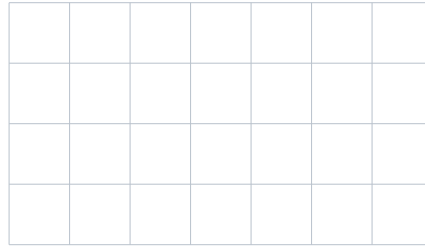
An L-shaped prism: the L has overall width 5 cm and height 3 cm, the tall part is 2 cm wide and the lower step is 2 cm high; the prism is 3 cm deep

2 / 2

- 31 The diagram shows a solid made from centimetre cubes.
On the centimetre grid below draw the plan and the side elevation for the solid.



← side

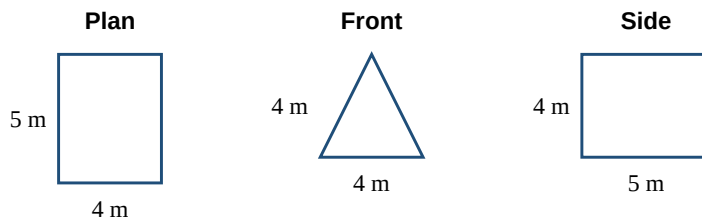


*Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 2*

Plan (back row at the top): row 1: ■■■. Side elevation (front on the left): column heights 2

2 / 2

- 32 The diagram shows the plan, front elevation and side elevation of a prism.
The front elevation is a triangle.
Work out the volume of the prism. Diagram NOT accurately drawn.



*Triangle area = $\frac{1}{2} \times 4 \times 4 = 8$
volume = 8×5*

40 m³

2 / 2

- 33 The diagram shows the plan of a solid made from centimetre cubes.
The number in each square is the number of cubes stacked there (a blank square has no cubes).
The front of the solid is the bottom of the diagram.
Write down the height of each column in the side elevation viewed from the right, from front to back.

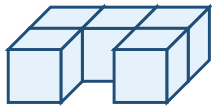
2	2	3	3
2	1	2	1

Looking from the right, each row (front to back) shows its tallest stack: 2, 3

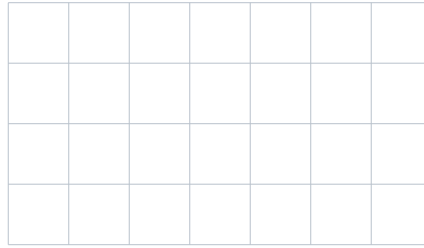
2, 3

2 / 2

- 34 The diagram shows a solid made from centimetre cubes.
On the centimetre grid below draw the plan and the side elevation for the solid.



← side

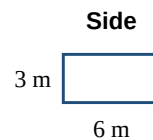
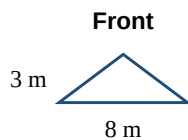
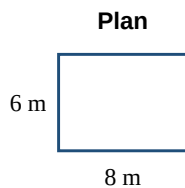


Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 1, 1

Plan (back row at the top): row 1: ■■■, row 2: ■□■. Side elevation (front on the left): column heights 1, 1

2 / 2

- 35 The diagram shows the plan, front elevation and side elevation of a prism.
The front elevation is a triangle.
Work out the volume of the prism. Diagram NOT accurately drawn.

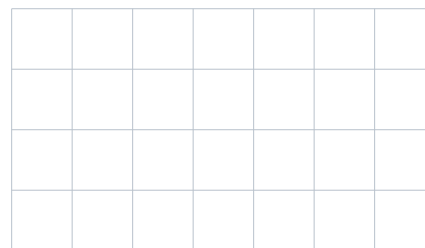
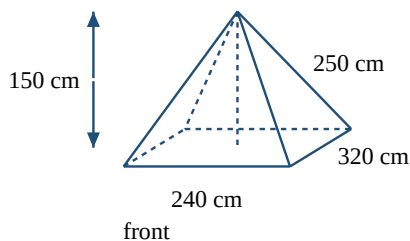


Triangle area = $\frac{1}{2} \times 8 \times 3 = 12$
volume = 12×6

72 m³

2 / 2

- 36 The diagram shows a pyramid with a rectangular base and a perpendicular height of 150 cm.
On the centimetre grid below, draw the plan and the front elevation of the pyramid.
Use a scale of 2 cm to 1 m.

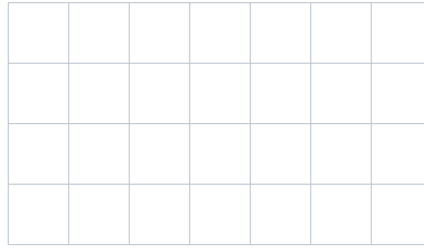
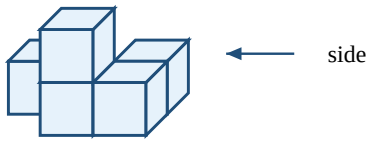


150 cm becomes 3 cm

Plan: a rectangle 4.8 cm by 6.4 cm with the diagonals drawn. Front elevation: an isosceles triangle with base 4.8 cm and height 3 cm

2 / 2

- 37 The diagram shows a solid made from centimetre cubes.
On the centimetre grid below draw the plan and the side elevation for the solid.

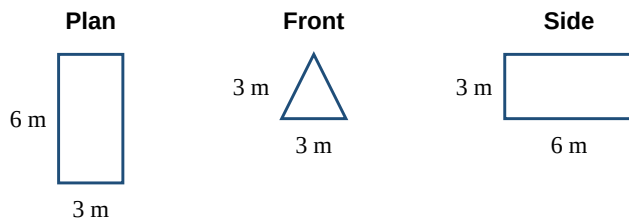


Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 2, 1

Plan (back row at the top): row 1: ■□■, row 2: □■■. Side elevation (front on the left): column heights 2, 1

2 / 2

- 38 The diagram shows the plan, front elevation and side elevation of a prism.
The front elevation is a triangle.
Work out the volume of the prism. Diagram NOT accurately drawn.

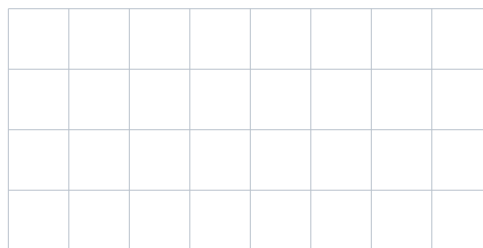
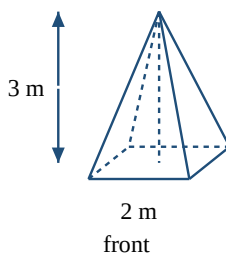


Triangle area = $\frac{1}{2} \times 3 \times 3 = 4.5$
volume = 4.5×6

27 m³

2 / 2

- 39 The diagram shows a square based pyramid with a perpendicular height of 3 m.
On the centimetre grid below, draw the plan and the front elevation of the pyramid.
Use a scale of 1 cm to 1 m.

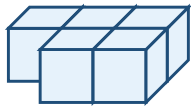


Scale 1 cm to 1 m, so multiply every length by 1: base $2 \times 1 = 2$ cm, height $3 \times 1 = 3$ cm

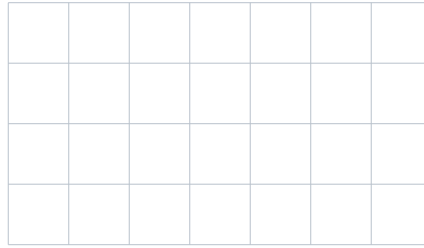
Plan: a square 2 cm by 2 cm with both diagonals drawn. Front elevation: an isosceles triangle with base 2 cm and height 3 cm

3 / 3

- 40 The diagram shows a solid made from centimetre cubes.
On the centimetre grid below draw the plan and the side elevation for the solid.



← side

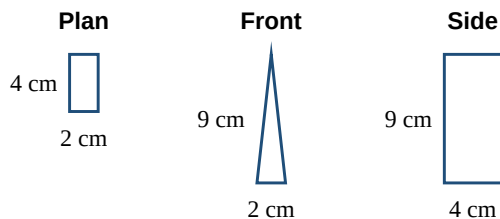


Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 1, 1

Plan (back row at the top): row 1: ■■■, row 2: □■■. Side elevation (front on the left): column heights 1, 1

3 / 3

- 41 The diagram shows the plan, front elevation and side elevation of a prism.
The front elevation is a triangle.
Work out the volume of the prism. Diagram NOT accurately drawn.

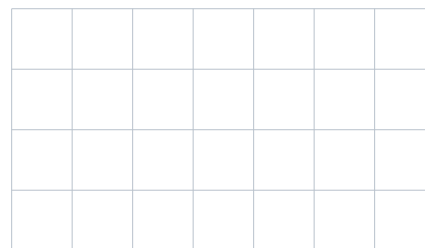
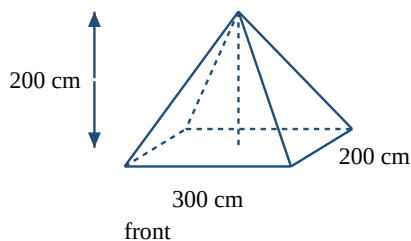


Triangle area = $\frac{1}{2} \times 2 \times 9 = 9$
volume = 9×4

36 cm³

3 / 3

- 42 The diagram shows a pyramid with a rectangular base and a perpendicular height of 200 cm.
On the centimetre grid below, draw the plan and the front elevation of the pyramid.
Use a scale of 2 cm to 1 m.

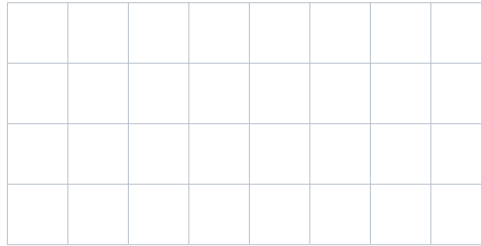
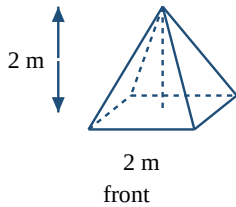


200 cm becomes 4 cm

Plan: a rectangle 6 cm by 4 cm with the diagonals drawn. Front elevation: an isosceles triangle with base 6 cm and height 4 cm

3 / 3

- 43 The diagram shows a square based pyramid with a perpendicular height of 2 m. On the centimetre grid below, draw the plan and the front elevation of the pyramid. Use a scale of 1 cm to 1 m.

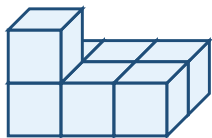


Scale 1 cm to 1 m, so multiply every length by 1: base $2 \times 1 = 2$ cm, height $2 \times 1 = 2$ cm

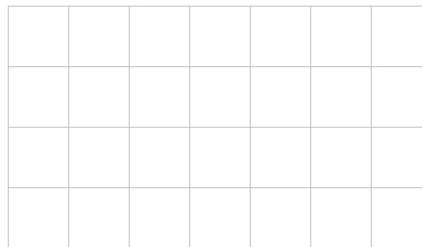
Plan: a square 2 cm by 2 cm with both diagonals drawn. Front elevation: an isosceles triangle with base 2 cm and height 2 cm

3 / 3

- 44 The diagram shows a solid made from centimetre cubes. On the centimetre grid below draw the plan and the side elevation for the solid.



side

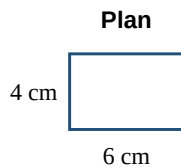
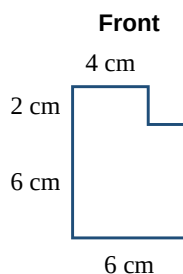


Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 2, 1

Plan (back row at the top): row 1: ■■■, row 2: ■■■. Side elevation (front on the left): column heights 2, 1

3 / 3

- 45 The diagram shows the front elevation and plan of a solid made from two cuboids. Work out the volume of the solid. Diagram NOT accurately drawn.

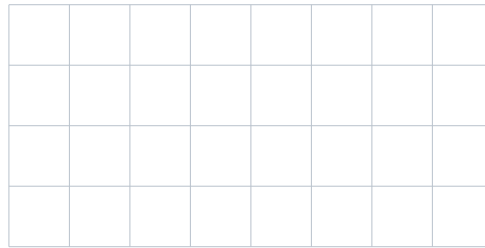
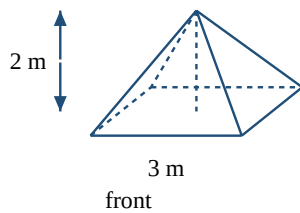


Bottom cuboid: $6 \times 4 \times 6 = 144$
top cuboid: $4 \times 4 \times 2 = 32$
total 176

176 cm³

3 / 3

- 46 The diagram shows a square based pyramid with a perpendicular height of 2 m. On the centimetre grid below, draw the plan and the front elevation of the pyramid. Use a scale of 1 cm to 1 m.

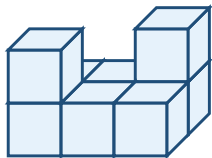


Scale 1 cm to 1 m, so multiply every length by 1: base $3 \times 1 = 3$ cm, height $2 \times 1 = 2$ cm

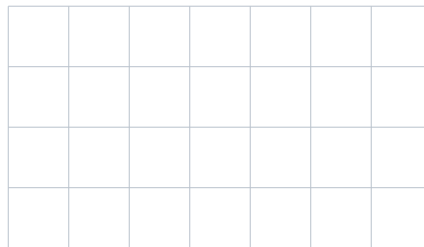
Plan: a square 3 cm by 3 cm with both diagonals drawn. Front elevation: an isosceles triangle with base 3 cm and height 2 cm

3 / 3

- 47 The diagram shows a solid made from centimetre cubes. On the centimetre grid below draw the plan and the side elevation for the solid.



side

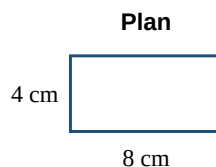
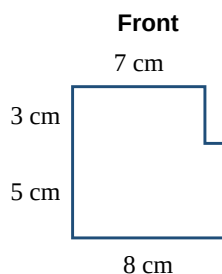


Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 2, 2

Plan (back row at the top): row 1: ■■■, row 2: ■■■. Side elevation (front on the left): column heights 2, 2

3 / 3

- 48 The diagram shows the front elevation and plan of a solid made from two cuboids. Work out the volume of the solid. Diagram NOT accurately drawn.

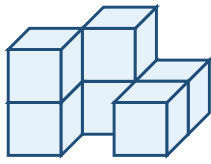


Bottom cuboid: $8 \times 4 \times 5 = 160$
top cuboid: $7 \times 4 \times 3 = 84$
total 244

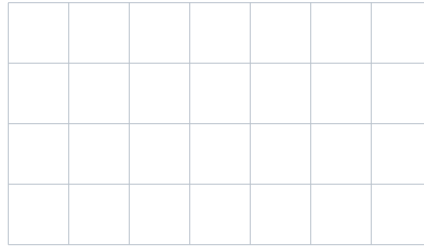
244 cm³

3 / 3

- 49 The diagram shows a solid made from centimetre cubes.
On the centimetre grid below draw the plan and the side elevation for the solid.



← side

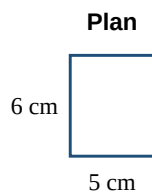
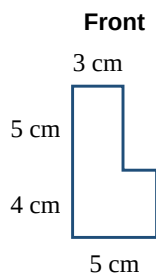


Plan: look from above, one square for each stack of cubes
Side elevation: look from the right, each column shows the tallest stack in that row, from front to back: 2, 2

Plan (back row at the top): row 1: ■■■, row 2: ■□■. Side elevation (front on the left): column heights 2, 2

3 / 3

- 50 The diagram shows the front elevation and plan of a solid made from two cuboids.
Work out the volume of the solid. Diagram NOT accurately drawn.



Bottom cuboid: $5 \times 6 \times 4 = 120$
top cuboid: $3 \times 6 \times 5 = 90$
total 210

210 cm³

3 / 3