

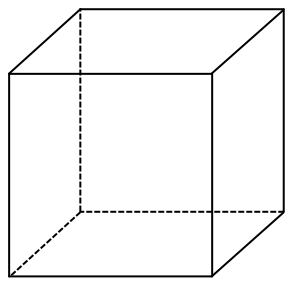


Volume and Surface Area of Cuboids



REVISE THIS TOPIC

1 Here is a cube.



Not drawn accurately

1 (a) Work out the volume of the cube.

[2 marks]

$$3 \times 3 \times 3$$

Answer 27 cm³

1 (b) Work out the surface area of the cube.

[2 marks]

$$3 \times 3 = 9 \text{ cm}^2$$

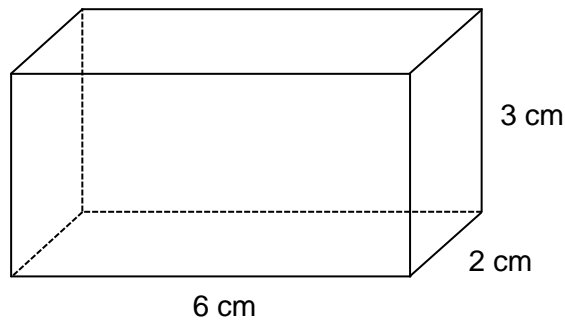
$$9 \times 6 = 54 \text{ cm}^2$$

Answer 54 cm²





2 Here is a cuboid.



Not drawn accurately

2 (a) Work out the volume of the cuboid.

[2 marks]

$$6 \times 2 \times 3$$

Answer 36 cm³

2 (b) Work out the surface area of the cuboid.

[3 marks]

$$6 \times 2 = 12$$

$$6 \times 3 = 18$$

$$2 \times 3 = \underline{6}$$
$$36$$

$$36 \times 2 = 72$$

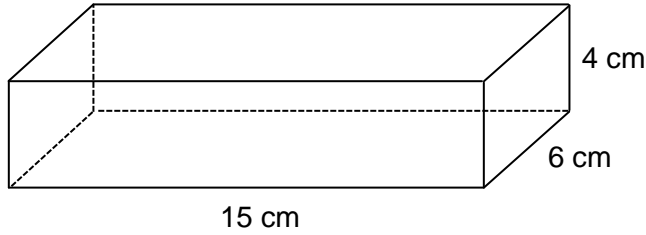
Answer 72 cm²





3 Here is a cuboid.

Not drawn accurately



3 (a) Work out the volume of the cuboid.

[2 marks]

$$15 \times 6 \times 4$$

Answer 360 cm³

3 (b) Work out the surface area of the cuboid.

[3 marks]

$$15 \times 6 = 90$$

$$15 \times 4 = 60$$

$$6 \times 4 = 24$$

$$\underline{174}$$

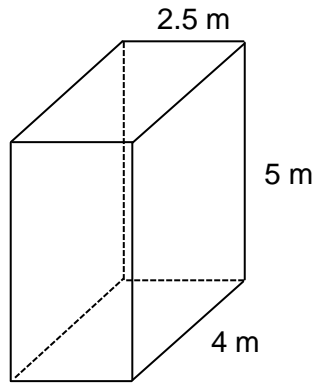
$$174 \times 2$$

Answer 348 cm²





4 Here is a cuboid.



Not drawn accurately

4 (a) Work out the volume of the cuboid.

[2 marks]

$$4 \times 5 \times 2.5$$

Answer 50 m³

4 (b) Work out the surface area of the cuboid.

[3 marks]

$$4 \times 5 = 20$$

$$4 \times 2.5 = 10$$

$$5 \times 2.5 = 12.5$$

$$\frac{10 + 12.5}{2} = 11.25$$

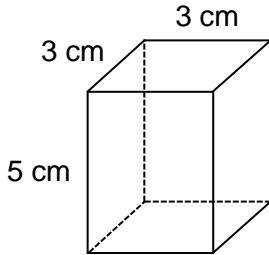
Answer 85 m²



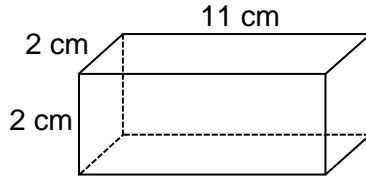


5 Here are three cuboids. Not drawn accurately

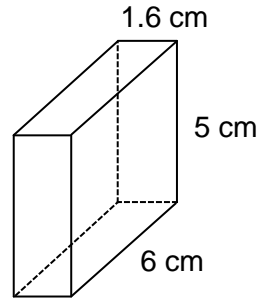
Cuboid A



Cuboid B



Cuboid C



Work out the cuboid that has the greatest volume.
You must show your working.

[4 marks]

$$A: 3 \times 3 \times 5 = 45 \text{ cm}^3$$

$$B: 2 \times 2 \times 11 = 44 \text{ cm}^3$$

$$C: 6 \times 5 \times 1.6 = 48 \text{ cm}^3$$

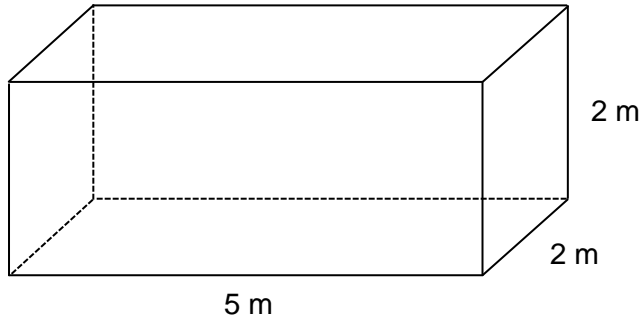
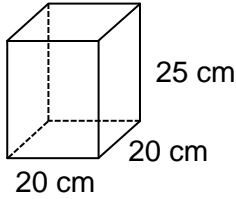
Answer C





6 Here is a small cuboid and a large cuboid.

Not drawn accurately



Work out how many of the smaller cuboids could fit into the larger cuboid.

[4 marks]

$$20 \times 20 \times 25 = 10000 \text{ cm}^3$$

$$500 \times 200 \times 200 = 20000000 \text{ cm}^3$$

$$20000000 \div 10000 = 2000$$

OR

$$500 \div 20 = 25$$

$$200 \div 20 = 10$$

$$200 \div 25 = 8$$

$$25 \times 10 \times 8 = 2000$$

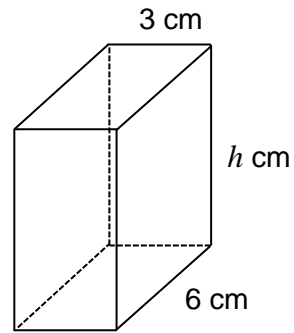
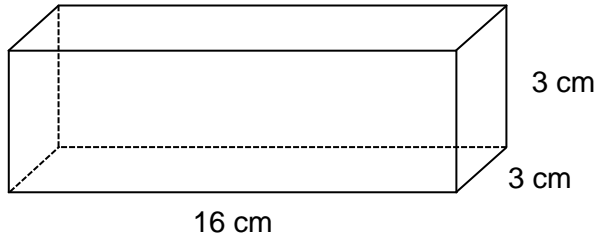
Answer 2000





7 Here are two cuboids with the same volume.

Not drawn accurately



Work out the value of h .

[4 marks]

$$16 \times 3 \times 3 = 144 \text{ cm}^3$$

$$6 \times 3 = 18$$

$$144 \div 18 = 8$$

$$h = 8 \text{ cm}$$

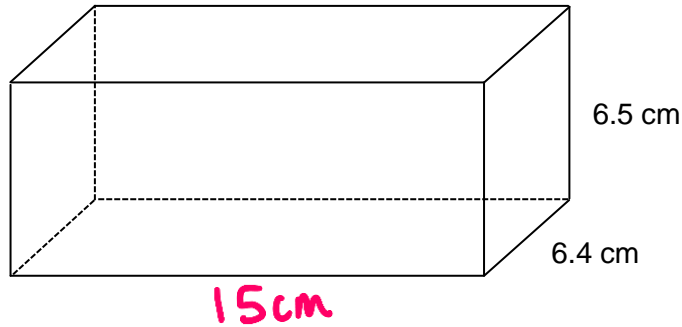




8

Here is a cuboid.

Not drawn accurately



The volume of the cuboid is 624 cm^3

Work out the surface area of the cuboid.

[4 marks]

$$6.4 \times 6.5 = 41.6$$

$$624 \div 41.6 = 15$$

$$6.4 \times 6.5 = 41.6$$

$$235.1 \times 2$$

$$6.4 \times 15 = 96$$

$$= 470.2$$

$$6.5 \times 15 = 97.5$$

$$\underline{235.1}$$

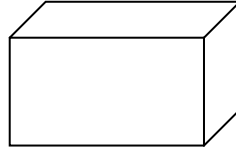
$$470.2$$

Answer _____ cm^2

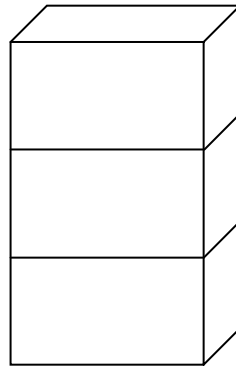




9 Here is a cuboid.



The identical copies of the cuboid are stacked together to make a larger cuboid.



For each statement below, tick one box.

[3 marks]

True

False

The height of the new cuboid is 3 times the height of the original cuboid.

The volume of the new cuboid is 3 times the volume of the original cuboid.

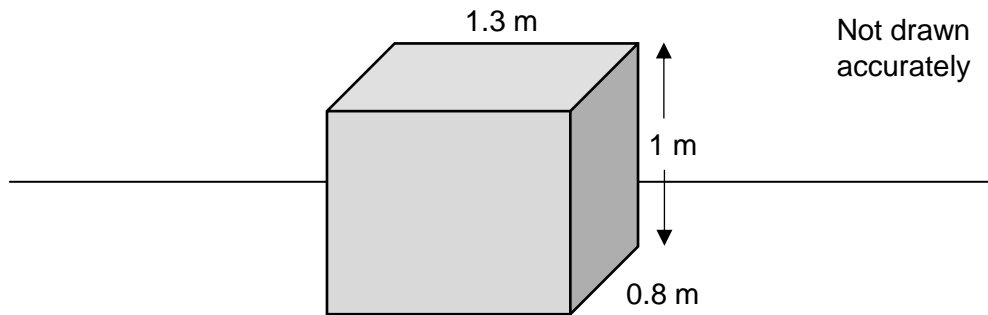
The surface area of the new cuboid is 3 times the surface area of the original cuboid.





10

A cuboid is placed onto a flat surface so that the bottom face is no longer visible.



The five visible faces of the cuboid are to be painted.
Each tin of paint can cover an area of 1 m^2 and costs £3.50

Work out how much it would cost to buy enough tins of paint to paint the five visible faces of the cuboid.

[5 marks]

$$1 \times 0.8 = 0.8$$

$$1 \times 1.2 = 1.2$$

$$1.2 \times 0.8 = 0.96$$

$$(2 \times 0.8) + (2 \times 1.2) + (1 \times 0.96) = 4.96 \text{ m}^2$$

$$\text{need 5 tins} \quad 5 \times 3.50 = \pounds 17.50$$

Answer £ 17.50





11 A cube has a volume of 1000 cm^3
Work out the surface area of the cube. [3 marks]

$$\sqrt[3]{1000} = 10$$

$$10 \times 10 \times 6 = 600$$

Answer 600 cm^2

12 A cube has a surface area of 54 cm^2
Work out the volume of the cube. [4 marks]

$$54 \div 6 = 9$$

$$\sqrt{9} = 3$$

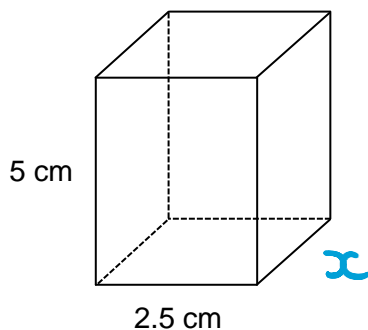
$$3 \times 3 \times 3$$

Answer 27 cm^3





13 Here is a cuboid.



The surface area of the cuboid is 61 cm^2

Work out the volume of the cuboid.

[5 marks]

$$5 \times 2.5 = 12.5$$

$$12.5 \times 2 = 25$$

$$61 - 25 = 36$$

$$15x = 36$$

$$x = \frac{36}{15}$$

$$x = 2.4$$

$$2.5 \times x \times 2 = 5x$$

$$5 \times x \times 2 = 10x$$

$$10x + 5x = 15x$$

$$5 \times 2.5 \times 2.4$$

$$= 30$$

Answer 30 cm^3

