REVISE THIS TOPIC
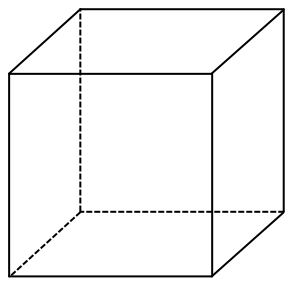
Volume and Surface Area of Cuboids

1 Here is a cube.

Not drawn accurately

3 cm

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]**

$3 \times 3 = 9 \, cm^2$

$9 \times 6 = 54 \, cm^2$

Answer _____ 54 _____ cm²

4

2   Here is a cuboid.

Not drawn accurately

3 cm

2 cm

6 cm
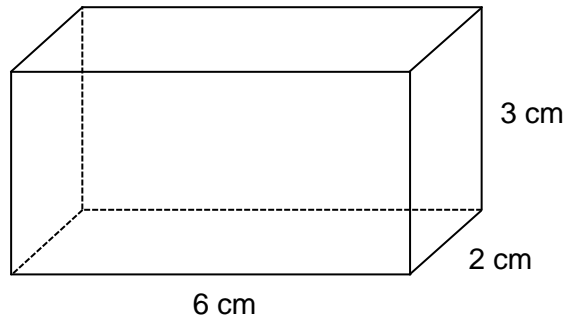
2 (a)   Work out the volume of the cuboid.   **[2 marks]**

$$6 \times 2 \times 3$$

Answer _____ 36 _____ cm³

2 (b)   Work out the surface area of the cuboid.   **[3 marks]**

$$6 \times 2 = 12$$
$$6 \times 3 = 18 \qquad 36 \times 2 = 72$$
$$2 \times 3 = \underline{6}$$
$$36$$

Answer _____ 72 _____ cm²

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3   Here is a cuboid.

Not drawn
accurately

4 cm

6 cm

15 cm
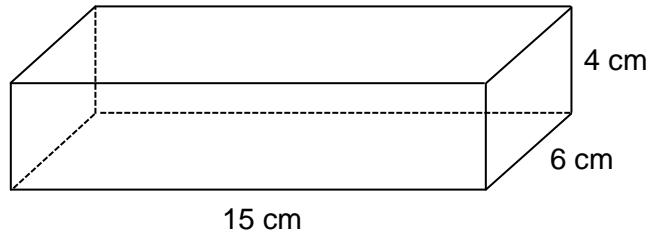
3 (a)   Work out the volume of the cuboid.   **[2 marks]**

$$15 \times 6 \times 4$$

Answer _____ **360** _____ cm³

3 (b)   Work out the surface area of the cuboid.   **[3 marks]**

$$15 \times 6 = 90$$
$$15 \times 4 = 60 \qquad 174 \times 2$$
$$6 \times 4 = \underline{24}$$
$$\overline{174}$$

Answer _____ **348** _____ cm²

10

Turn over ▶

4 Here is a cuboid.

2.5 m

5 m

4 m
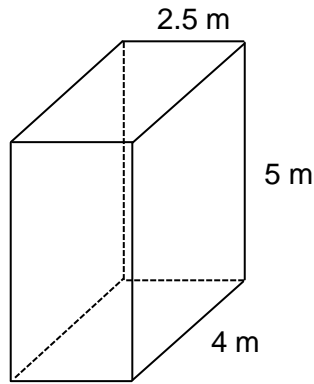
Not drawn accurately

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]**

$$4 \times 5 = 20 \qquad 32.5 \times 2 = 65$$
$$4 \times 2.5 = 10$$
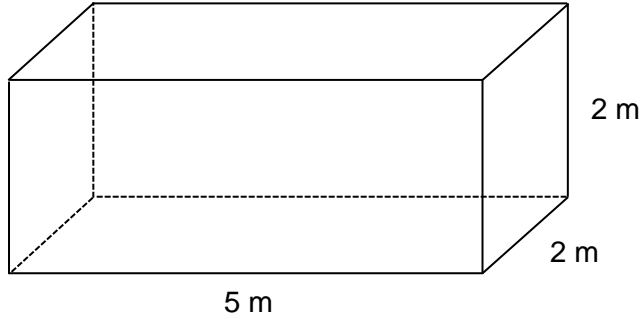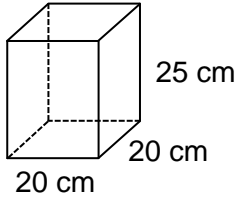$$5 \times 2.5 = \underline{12.5}$$
$$32.5$$

Answer _____ 65 _____ m²

5　　Here are three cuboids.

Not drawn accurately

Cuboid A　　　　　　**Cuboid B**　　　　　　**Cuboid C**

3 cm
3 cm
5 cm

11 cm
2 cm
2 cm

1.6 cm
5 cm
6 cm

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 _____

9

Turn over ▶

6   Here is a small cuboid and a large cuboid.

Not drawn accurately

25 cm

20 cm

20 cm

2 m

2 m

5 m

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

[4 marks]

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

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

$20\,000\,000 \div 10000 = 2000$

OR

$500 \div 20 = 25$

$200 \div 20 = 10$
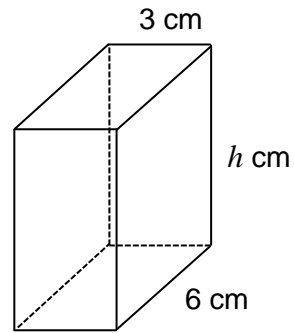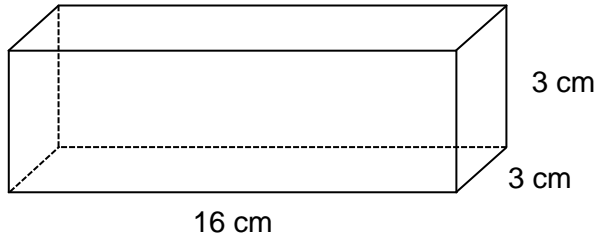
$200 \div 25 = 8$

$25 \times 10 \times 8$

$= 2000$

Answer   **2000**

7   Here are two cuboids with the same volume.

Not drawn accurately

3 cm

h cm

3 cm

6 cm

3 cm

16 cm

Work out the value of h.   **[4 marks]**

$16 \times 3 \times 3 = 144 \, cm^3$

$6 \times 3 = 18$

$144 \div 18 = 8$

$h =$ _____8_____ cm

8

Turn over ▶

8   Here is a cuboid.

Not drawn
accurately

6.5 cm

6.4 cm

15cm
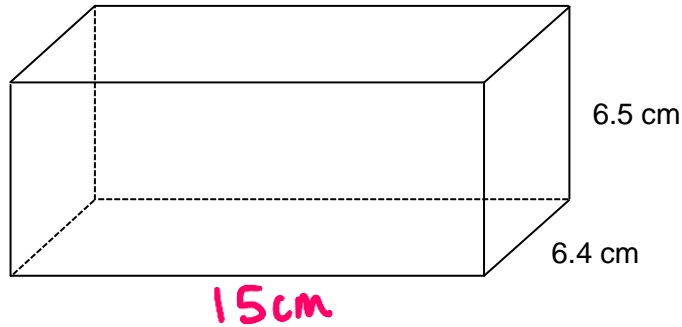
The volume of the cuboid is 624 cm³

Work out the surface area of the cuboid.   **[4 marks]**

$6.4 \times 6.5 = 41.6$
$624 \div 41.6 = 15$

$6.4 \times 6.5 = 41.6$ 235.1×2
$6.4 \times 15 = 96$ $= 470.2$
$6.5 \times 15 = \underline{97.5}$
                    235.1

                    470.2

Answer _____ 470.2 _____ cm²
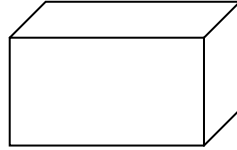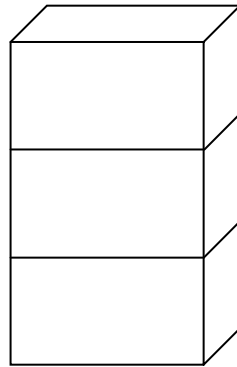
9   Here is a cuboid.

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

For each statement below, tick one box.   **[3 marks]**

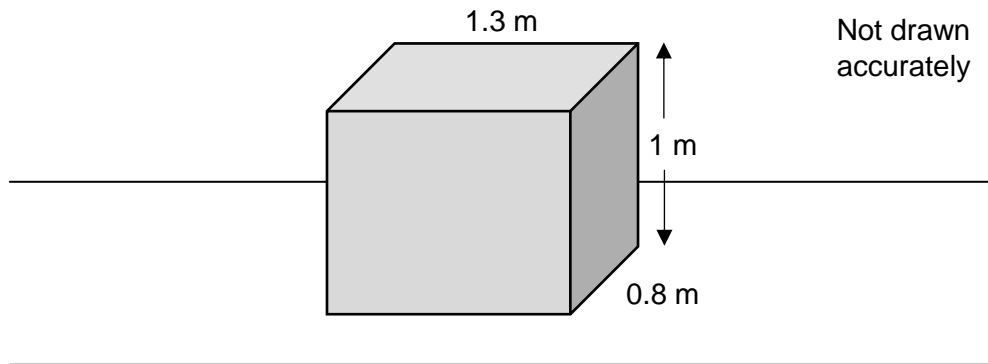|	True	False
The height of the new cuboid is 3 times the height of the original cuboid.	✓	
The volume of the new cuboid is 3 times the volume of the original cuboid.	✓	
The surface area of the new cuboid is 3 times the surface area of the original cuboid.		✓

7

Turn over ▶

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

1.3 m

Not drawn
accurately

1 m

0.8 m

The five visible faces of the cuboid are to be painted.
Each tin of paint can cover an area of 1 m² 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]**

$1 \times 0.8 = 0.8$

$1 \times 1.2 = 1.2$

$1.2 \times 0.8 = 0.96$

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

need 5 tins $5 \times 3.50 = £17.50$

Answer £ _____ 17.50 _____

11   A cube has a volume of 1000 cm³

Work out the surface area of the cube.   **[3 marks]**

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

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

Answer _____ 600 _____ cm²

12   A cube has a surface area of 54 cm²

Work out the volume of the cube.   **[4 marks]**
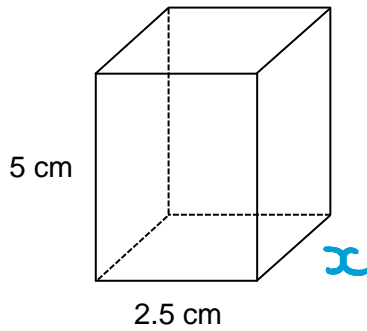
$$54 \div 6 = 9$$

$$\sqrt{9} = 3$$

$$3 \times 3 \times 3$$

Answer _____ 27 _____ cm³

12

Turn over ▶

13 Here is a cuboid.

5 cm

x

2.5 cm

The surface area of the cuboid is 61 cm^2

Work out the volume of the cuboid.

[5 marks]

$5 \times 2.5 = 12.5$

$12.5 \times 2 = 25$

$61 - 25 = 36$

$15x = 36$

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

$x = 2.4$

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

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

$10x + 5x = 15x$

$5 \times 2.5 \times 2.4$

$= 30$

Answer _____ 30 _____ cm^3

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