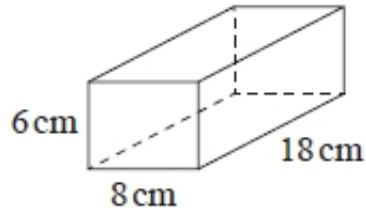
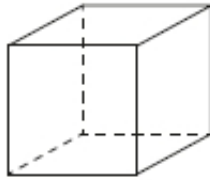


## G115 Nets and surface area

Q1.

The diagram shows a cube and a cuboid.



The total surface area of the cube is equal to the total surface area of the cuboid.

Janet says,

"The volume of the cube is equal to the volume of the cuboid."

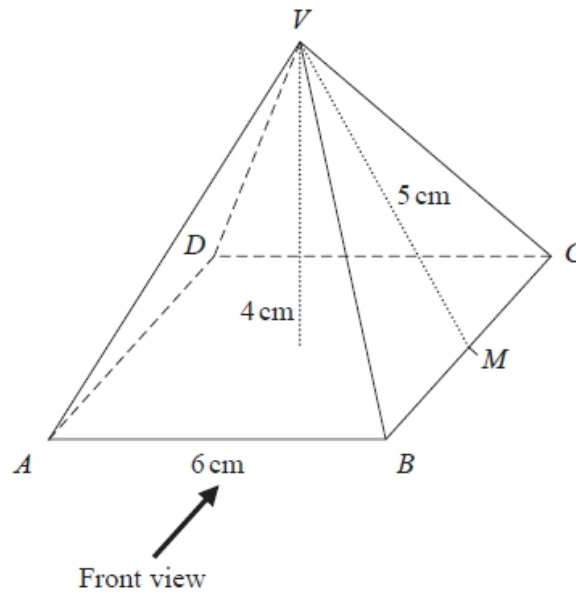
Is Janet correct?

You must show how you get your answer.

**(Total for question = 5 marks)**

**Q2.**

Here is a solid square-based pyramid,  $VABCD$ .



The base of the pyramid is a square of side 6 cm.  
 The height of the pyramid is 4 cm.  
 $M$  is the midpoint of  $BC$  and  $VM = 5$

(a) Draw an accurate front elevation of the pyramid from the direction of the arrow.



(2)

(b) Work out the total surface area of the pyramid.

.....  
 (4)  
**(Total for question = 6 marks)**

**Q3.**

The total surface area of a cube is  $294 \text{ cm}^2$ .

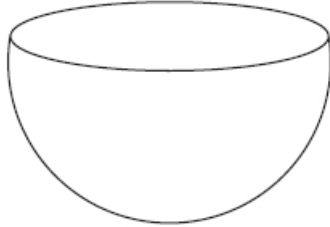
Work out the volume of the cube.

.....  $\text{cm}^3$

**(Total for question = 4 marks)**

**Q4.**

The diagram shows a solid hemisphere.



Volume of sphere =  $\frac{4}{3}\pi r^3$   
Surface area of sphere =  $4\pi r^2$

The volume of the hemisphere is  $\frac{250}{3}\pi$

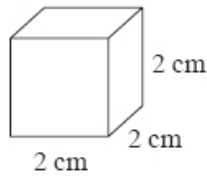
Work out the exact total surface area of the solid hemisphere.  
Give your answer as a multiple of  $\pi$ .

..... cm<sup>2</sup>

**(Total for question is 4 marks)**

**Q5.**

The diagram shows a cube of side length 2 cm.



Vera says,

"The volume of any solid made with 6 of these cubes is  $48 \text{ cm}^3$ "

(a) Is Vera correct?

You must show your working.

.....  
.....

(2)

(b) (i) Draw a cuboid that can be made with 6 of these cubes.

Write the dimensions of the cuboid on your diagram.

(1)

(ii) Work out the surface area of your cuboid.

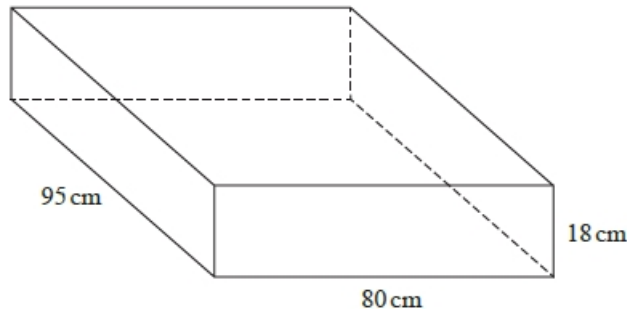
.....  $\text{cm}^2$

(2)

**(Total for question = 5 marks)**

**Q6.**

A sofa has 6 identical cushions.  
Each cushion is a cuboid 18 cm by 80 cm by 95 cm.



The cushions are covered with a protective spray.  
The protective spray is in cans.

The label on each can has this information.

Spray in this can covers  $4\text{ m}^2$

(a) Work out how many cans are needed to cover the 6 cushions with protective spray.

.....  
(5)

The information on each label is inaccurate.  
The spray in each can covers 10% more than  $4\text{ m}^2$ .

(b) How will this affect the number of cans needed for the 6 cushions?

You must show how you get your answer.

.....  
.....

(2)  
**(Total for question = 7 marks)**

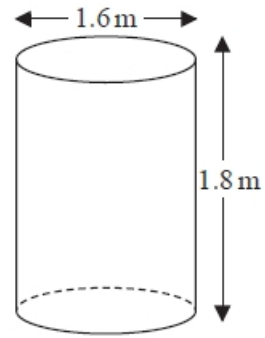
**Q7.**

Jeremy has to cover 3 tanks completely with paint.

Each tank is in the shape of a cylinder with a top and a bottom.  
The tank has a diameter of 1.6 m and a height of 1.8 m.

Jeremy has 7 tins of paint.  
Each tin of paint covers  $5 \text{ m}^2$

Has Jeremy got enough paint to cover completely the 3 tanks?  
You must show how you get your answer.



**(Total for question = 5 marks)**