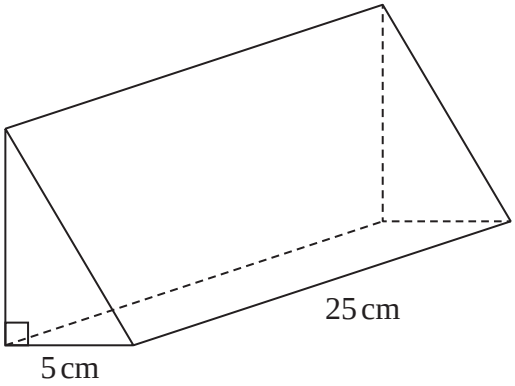
1 The diagram shows a prism.



The cross section of the prism is a right-angled triangle.
The base of the triangle has length 5 cm

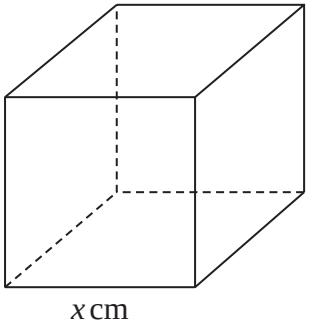
The prism has length 25 cm
The prism has volume 750 cm^3

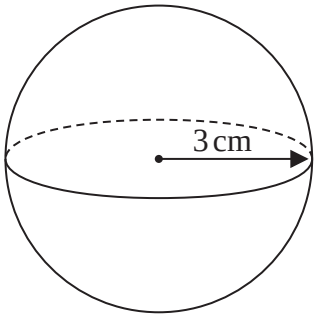
Work out the height of the prism.

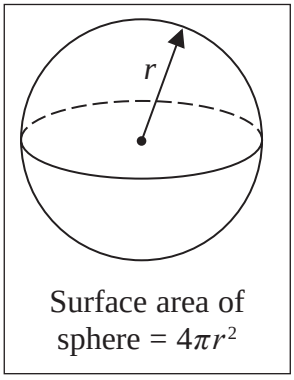
..... cm

(Total for Question 1 is 3 marks)

2 The diagram shows a cube with edges of length x cm and a sphere of radius 3 cm.





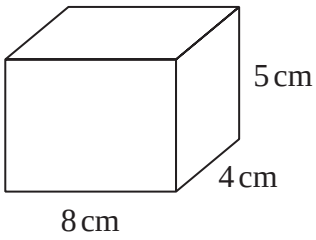


The surface area of the cube is equal to the surface area of the sphere.

Show that $x = \sqrt{k\pi}$ where k is an integer.

(Total for Question 2 is 4 marks)

3 Here is a cuboid.

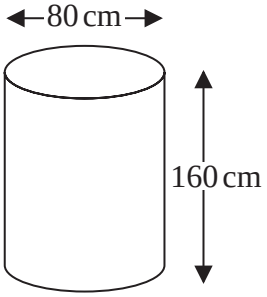


Work out the volume of the cuboid.

..... cm^3

(Total for Question 3 is 2 marks)

4 Karina has 4 tanks on her tractor.
Each tank is a cylinder with diameter 80 cm and height 160 cm.



The 4 tanks are to be filled completely with a mixture of fertiliser and water.

The fertiliser has to be mixed with water in the ratio 1 : 100 by volume.
Karina has 32 litres of fertiliser.

1 litre = 1000 cm^3

Has Karina enough fertiliser for the 4 tanks?
You must show how you get your answer.

(Total for Question 4 is 4 marks)

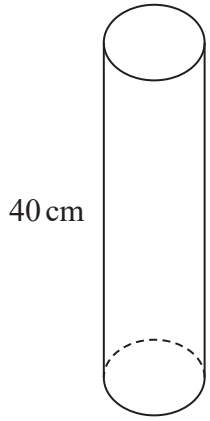
5 A cube has a total surface area of $150\,cm^2$

Work out the volume of the cube.

..... cm^3

(Total for Question 5 is 4 marks)

6 The diagram shows a solid cylinder on a horizontal floor.



$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

The cylinder has a

volume of $1200\,\text{cm}^3$
height of 40 cm.

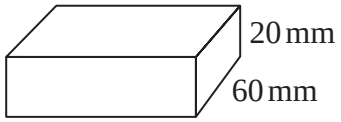
The cylinder exerts a force of 90 newtons on the floor.

Work out the pressure on the floor due to the cylinder.

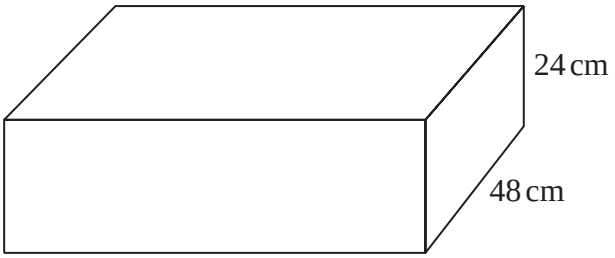
..... newtons/cm^2

(Total for Question 6 is 3 marks)

7 Packets of sweets are put into boxes.



Packet



Box

Each packet is a cuboid, 80 mm by 60 mm by 20 mm.
Each box is a cuboid, 72 cm by 48 cm by 24 cm.

Work out the greatest number of packets that can be put into each box.

.....

(Total for Question 7 is 4 marks)

8 A solid cuboid is made of metal.

The metal has a density of $9\,g/cm^3$
The volume of the cuboid is $72\,cm^3$

Work out the mass of the cuboid.

..... g

(Total for Question 8 is 2 marks)

9 Habib has two identical tins.

He puts 600 grams of flour into one of the tins.
The flour fills the tin completely.
The density of the flour is 0.6 g/cm^3

Habib puts 600 grams of salt into the other tin.
The salt does **not** fill the tin completely.
The volume of the space in the tin that is **not** filled with salt is 700 cm^3

Work out the density of the salt.
You must show all your working.

..... g/cm^3

(Total for Question 9 is 4 marks)