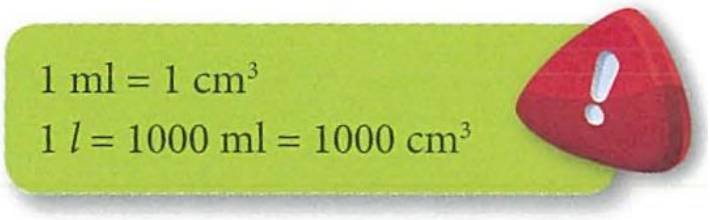
S1 Worksheet 13.1: Volume and Surface Area of Prisms & Cylinders

Name:

Class: Date:

Conversion of Units



TB 1B, pg 170

1 Express

(a) 10 m^3

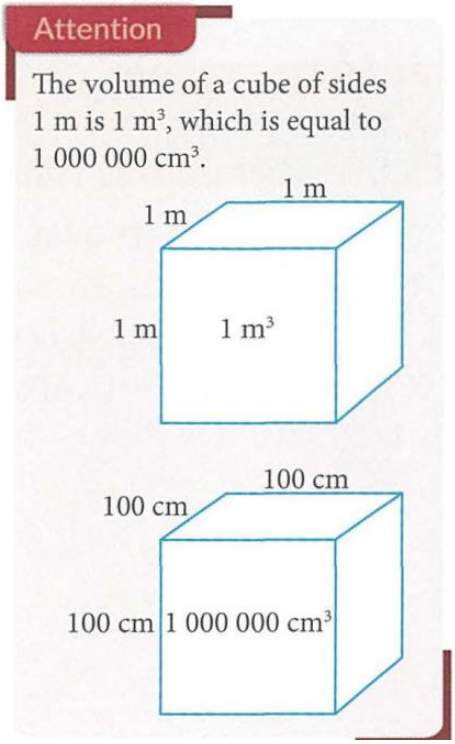
(i) in cm^3

(ii) in millilitres

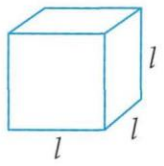
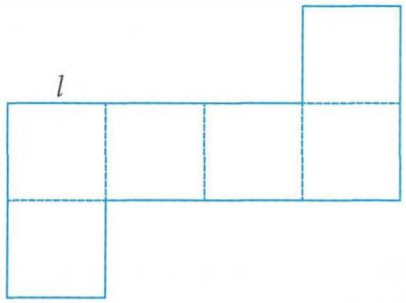
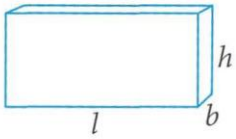
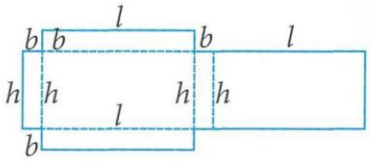
(b) 165 000 cm^3

(i) in m^3

(ii) in litres



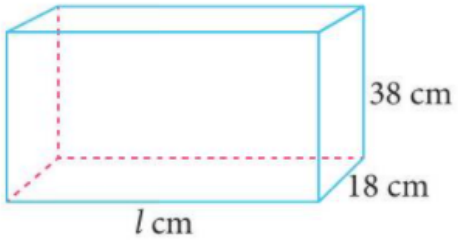
Cubes & Cuboids

Name	Figure	Volume	Net
Cube		l^3	
Cuboid		lbh	

(TB 1B, pg 175)

2 A cuboid, with dimensions l cm by 18 cm by 38 cm, has a volume of 35 568 cm^3.

(a) Find the length, l, of the cuboid.



(b) The cuboid is melted to form cubes of length 2 cm. How many cubes can be obtained?

(c) Ali says that if the cuboid is cut into cubes of length 2 cm, the maximum number of cubes obtained will be the same as that in part (ii).

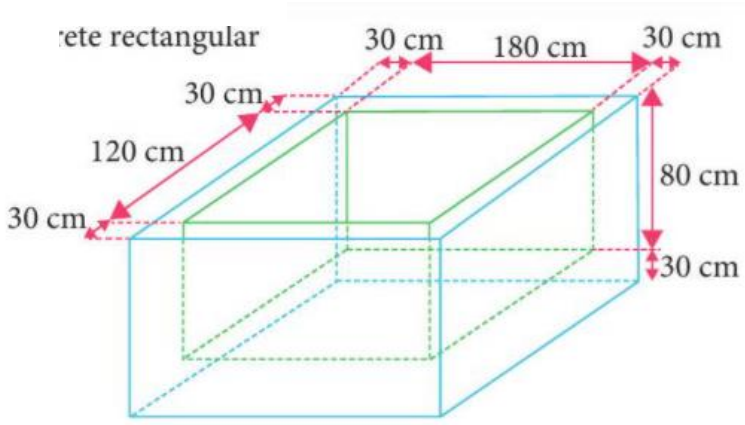
Is Ali correct? Explain your answer.

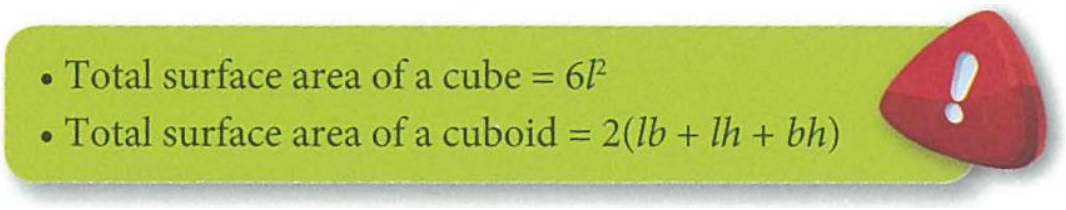
3 An open rectangular tank is 55 cm long, 35 cm wide and 36 cm high.

If it is initially half-filled with water, find the depth of water in the tank after 7700 cm^3 of water is added.

4 The internal dimensions of an open concrete rectangular tank are 180 cm by 120 cm by 80 cm.

If the concrete has a thickness of 30 cm, find the volume of concrete used, leaving your answer in m^3.





TB 1B, pg 177

5 A cuboid is 8 cm long, 5 cm wide and 10 cm high. Find

(a) its volume,

(b) its surface area.

6 An open rectangular tank of length 16 cm and breadth 9 cm contains water to a height of 8 cm. Find

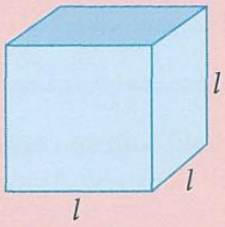
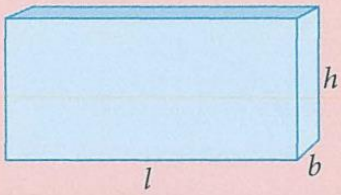
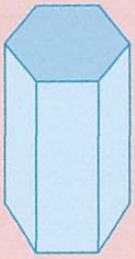
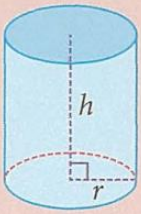
(a) the volume of water in the tank, giving your answer in litres,

(b) the surface area of the tank that is in contact with the water.

7 A metal cube has a volume of 27 cm^3.
It is to be painted on all its faces.

Find the total area of the faces that will be coated with paint.

Summary

Name	Figure	Volume	Total surface area
Cube		l^3	$6l^2$
Cuboid		$l \times b \times h$	$2(lb + lh + bh)$
Prism		Area of cross section × height = base area × height	Total area of the lateral faces + 2 × base area = perimeter of the base × height + 2 × base area
Closed cylinder		$\pi r^2 h$	$2\pi r^2 + 2\pi rh$