SURFACE AREAS AND VOLUMES

CUBOID AND CUBE

EXERCISE

Q.1 The length, breadth and height of a cuboid are in the ratio 6 : 4 : 5. If the total surface area of the cuboid is 2368 cm^2 ; find its dimension.

Q.2 A plastic box 1.5 m long, 1.25 m wide and 65 cm deep is to be made. It is to be open at the top. Ignoring the thickness of the plastic sheet, determine :

(i) The area of the sheet required for making the box.

(ii) The cost of sheet for it, if a sheet measuring 1 m^2 costs Rs. 20.

Q.3 The length, breadth and height of a room are 5m, 4m and 3m respectively. Find the cost of white washing the walls of the room and the ceiling at the rate of Rs. 7.50 per m^2.

Q.4 The floor of a rectangular hall has a perimeter 250 m. If the cost of painting the four walls at the rate of Rs. 10 per m^2 is Rs : 15,000, find the height of the hall.

Q.5 Shanti sweets stall was placing an order for making cardboard boxes for packing their sweets. Two sizes of boxes were required. The bigger of dimensions 25 cm × 20 cm × 5 cm and the smaller of dimensions 15 cm × 12 cm × 5 cm. For all the overlaps, 5% of the total surface area is required extra. If the cost of the cardboard is Rs. 4 for 1000 cm^2, find the cost of cardboard required for supplying 250 boxes of each kind.

Q.6 The volume of a cubical solid is 3240 cm^3, find, its

(i) height, if length =18 cm and breadth = 15cm

(ii) breadth, if length =24 cm and height = 10cm

(iii) length, if breadth = 9cm and height = 20cm

Q.7 A matchbox measures 6 cm × 4 cm × 2.5 cm. What will be the volume of a packet containing 24 such boxes ?

Q.8   A cuboidal water tank is 6 m long, 5 m wide and 4.5 m deep. How many liters of water can it hold? $(1 \text{ m}^2 = 1000 \ \lambda)$

Q.9   If each edge (side) of a cube is 8 cm ; find its surface area and lateral surface area.

Q.10 Find the volume of a solid cube of side 12 cm. If this cube is cut into 8 identical cubes, find :

(i)   Volume of each small cube.

(ii)   Side of each small cube.

(iii)   Surface area of each small cube.

Q.11 The volume of a cube is numerically equal to its surface area. Find the length of its one side.

Q.12 A solid cuboid has square base and height

12 cm. If its volume is 768 cm^3, find :

(i)   side of its square base.

(ii)   surface area.

ANSWER KEY

1.   length=24 cm, breadth= 16 cm height =20 cm

2.   (i)   5.45 m^2 (ii)   Rs. 109

3.   Rs. 555

4.   6 m

5.   Rs. 2184

6.   (i)12 cm   (ii)13.5 cm   (iii)18 cm

7   1440 cm^3

8.   135000 λ

9.   Its surface area $= 384$ cm^2 ⸴Lateral surface area $= 256$ cm^2

10.   (i) 216 cm^3 (ii)6 cm   (iii) 216 cm^2

11.   6 cm

12.   (i)8 cm   (ii)512 cm^2