

01

What is the weight of a cuboid whose length, breadth and height are 10 cm, 8 cm and 5 cm weighs 10 grams per cm^3 .

$$\text{Volume} = 10 \text{ cm} \times 8 \times 5 \text{ cm} = 400 \text{ cm}^3$$

$$\text{Weight} = \text{volume} \times \text{density}$$

$$= 400 \text{ cm}^3 \times \frac{10 \text{ g}}{\text{cm}^3} = 4000 \text{ grams} = 4 \text{ kg}$$

02

Find the number of soaps of 5 cm × 2.5 cm × 2.5 cm can be kept in a box of 15 cm × 15 cm × 15 cm.

$$\text{No. of soaps} = \frac{\text{Volume of box}}{\text{Volume of each soap}}$$

$$= \frac{15 \times 15 \times 15 \text{ cm}^3}{5 \times 2.5 \times 2.5 \text{ cm}^3} = 108$$

03

If the total surface area of a cuboid of $10 \text{ cm} \times 8 \text{ cm} \times 7 \text{ cm}$ is equal to lateral surface area of a cube find the (approx) volume of a cube.

$$\text{TSA of cuboid} = 2(80 + 56 + 70) \text{ cm}^2$$

$$4a^2 = 2 \times 206 \text{ cm}^2$$

$$a^2 = 103 \text{ cm}^2,$$

$$a = 10 \text{ cm (approx)}$$

$$\therefore \text{Volume} = a^3 = (10 \text{ cm})^3 = 1000 \text{ cm}^3$$

04

If LSA of a cube and volume are numerically equal, find total surface area of that cube.

$$\text{Given } 4a^2 = a^3$$

$$\Rightarrow a = 4 \text{ cm}$$

$$\therefore \text{TSA} = 6a^2 = 6 \times 16 \text{ cm}^2 = 96 \text{ cm}^2$$

05

If the diagonal of a cuboid of 12 cm, 4 cm and 3 cm is equal to diagonal of a cube then find the ratio of total surface area of cube and cuboid.

$$\text{Diagonal of a cuboid} = \sqrt{l^2 + b^2 + h^2}$$

$$= \sqrt{144 + 16 + 9} = 13 \text{ cm}$$

$$\text{Given diagonal of a cube} = 13 \text{ cm}$$

$$\therefore \Rightarrow \sqrt{3} a = 13 \text{ cm}$$

$$a = \frac{13}{\sqrt{3}} \text{ cm}$$

TSA of cuboid & cube

$$= 2(48 + 12 + 36) : 6 \times \left(\frac{13}{\sqrt{3}}\right)^2 = 2 \times 96 : 6 \times \frac{169}{3}$$

$$= 96 : 169$$