

Class-V

Ch-18 (VOLUME)

- Volume of cuboid = $(\text{Length} \times \text{Breadth} \times \text{Height}) \text{ cu. cm. / cu. m}$
- Volume of cube = $(\text{Side} \times \text{Side} \times \text{Side}) \text{ cu. cm. / cu. m}$

Ex-18(A)

2. a) Length = 8m Breadth = 5m Height = 4m

$$\text{Volume of the cuboid} = \text{Length} \times \text{Breadth} \times \text{Height}$$
$$= (8 \times 5 \times 4) \text{ cu. m}$$

$$= \underline{160 \text{ cu. m}} \text{ (Ans)}$$

c) Length = 75cm breadth = 50cm height = 30cm

$$\text{Volume of the cuboid} = \text{Length} \times \text{Breadth} \times \text{Height}$$
$$= (75 \times 50 \times 30) \text{ cu. cm.}$$

$$= 112500 \text{ cu. cm.}$$

3. Volume of cube = 3 × volume of cuboid.

$$\therefore \text{Volume of cuboid} = L \times B \times H$$
$$= (20 \times 15 \times 10) \text{ cu. cm}$$
$$= 3000 \text{ cu. cm.}$$

$$\therefore \text{Volume of cube} = 3 \times 3000$$
$$= \underline{9000 \text{ cu. cm}} \text{ (Ans)}$$

6 Measurement of a room:-

Length = 4.5m Breadth = 4m Height = 3.5m

$$\therefore \text{Volume of the room} = L \times B \times H \\ = (4.5 \times 4 \times 3.5) \text{ cu.m}$$

$$= 63 \text{ cu.m}$$

Each boy occupies 2.52 m^3 of space.

$$\therefore \text{No. of boys who can sit in the room} = \frac{\text{Volume of the room}}{\text{Space occupied by Each boy}}$$

$$= \frac{63 \times 100}{2.52 \times 100} = \frac{6300}{252}$$

$$\begin{array}{r} 252 \overline{) 6300} \quad (25) \\ \underline{504} \\ 1260 \\ \underline{1260} \\ \text{xx} \end{array} \quad \neq = \underline{25} \text{ boys}$$

Ans:-

63 cu m , 25 boys

7) Measurement of bricks:	Measurement of a wall
Length = 25 cm.	Length = 15 m = $15 \times 100 = 1500$ cm
Breadth = 10 cm.	Breadth = 1.25 m = $1.25 \times 100 = 125$ cm
Height = 7.5 cm.	Height = 2.5 m = $2.5 \times 100 = 250$ cm

$$\therefore \text{Volume of brick} = L \times B \times H \\ = (25 \times 10 \times 7.5) \text{ cu. cm.}$$

$$\text{Volume of a wall} = L \times B \times H \\ = (1500 \times 125 \times 250) \text{ cu. cm.}$$

$$\therefore \text{No of bricks} = \frac{\text{Volume of wall}}{\text{Volume of brick}}$$

$$= \frac{1500 \times 125 \times 250}{25 \times 10 \times 7.5}$$

$$= \frac{100 \quad 5 \quad 1}{\cancel{1500} \times \cancel{125} \times 250 \times 10^1} \\ \frac{25 \times 10 \times 7.5}{\quad 1 \quad 1 \quad 1} \quad 15$$

$$= 100 \times 250$$

$$= 25,000 \text{ bricks is required.} \\ \text{(Ans).}$$

9) Edge of a cube = 1.5 cm.

$$\begin{aligned}\text{Volume of a cube} &= \text{side} \times \text{side} \times \text{side} \\ &= (1.5 \times 1.5 \times 1.5) \text{ cu. cm.} \\ &= 3.375 \text{ cu. cm.}\end{aligned}$$

$$\begin{aligned}\therefore \text{Volume of 10 cubes} &= 3.375 \times 10 \\ &= 33.75 \text{ cu. cm.}\end{aligned}$$

Ans:- Volume of the cubical block = $\underline{33.75 \text{ cu. cm}}$ (Ans)

11) The dimension of rectangular block:-

$$L = 8 \text{ m} = (8 \times 100) = 800 \text{ cm.}$$

$$B = 1.5 \text{ m} = (1.5 \times 100) = 150 \text{ cm.}$$

$$H = 75 \text{ cm.}$$

$$\begin{aligned}\text{Volume of the rectangular block} &= L \times B \times H \\ &= (800 \times 150 \times 75) \text{ cu. cm.}\end{aligned}$$

$$\text{Edge of a block} = 50 \text{ cm.}$$

$$\begin{aligned}\therefore \text{Volume of block} &= \text{Edge} \times \text{Edge} \times \text{Edge} \\ &= (50 \times 50 \times 50) \text{ cu. cm.}\end{aligned}$$

$$\therefore \text{No. of cubical blocks} = \frac{\text{Volume of the rectangular block}}{\text{Volume of a cube}}$$

$$\begin{aligned}&= \frac{800 \times 150 \times 75}{50 \times 50 \times 50} = 8 \times 3 \times 3 \\ &= 72 \text{ blocks (Ans)}\end{aligned}$$

12 Measurement of swimming pool:—

$$\text{Length} = 30 \text{ m} = 30 \times 100 = 3000 \text{ cm.}$$

$$\text{Breadth} = 15 \text{ m} = 15 \times 100 = 1500 \text{ cm.}$$

$$\text{Height} = 4 \text{ m} = 4 \times 100 = 400 \text{ cm.}$$

$$\begin{aligned} \therefore \text{Volume of the swimming pool} &= L \times B \times H \\ &= (3000 \times 1500 \times 400) \text{ cu. cm} \\ &= 1800000000 \text{ cu. cm.} \end{aligned}$$

We know—

$$1000 \text{ cm}^3 = 1 \text{ l}$$

$$\begin{aligned} \therefore 1800000000 \text{ cm}^3 &= \frac{1800000000}{1000} \text{ l} \\ &= \underline{1800000} \text{ l} \end{aligned}$$

$$(1 \text{ l} = \frac{1}{1000} \text{ Kl})$$

$$\begin{aligned} \therefore 1800000 \text{ l} &= \frac{1800000}{1000} \\ &= \underline{1800 \text{ Kl.}} \end{aligned}$$

Ans:— 1800 Kl of water can be pumped into the tank.

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