



Exercise 20C

$$\text{Volume of the room} = 10 \times 8 \times 3.3 = 264 \text{ m}^3$$

One person requires 3 m^3 .

$$\therefore \text{Total no. of people that can be accommodated} = \frac{264}{3} = 88$$

Q13.

Answer :

(a) 30000

$$\text{Volume} = 3 \times 2 \times 5 = 30 \text{ m}^3 = 30000 \text{ L}$$

Q14.

Answer :

(b) 1390 cm^2

$$\text{Surface area} = 2(25 \times 15 + 15 \times 8 + 25 \times 8) = 2(375 + 120 + 200) = 1390 \text{ cm}^2$$

Q15.

Answer :

(d) 64 cm^2

$$\text{Diagonal of the cube} = a\sqrt{3} = 4\sqrt{3} \text{ cm}$$

i.e., $a = 4 \text{ cm}$

$$\therefore \text{Volume} = a^3 = 4^3 = 64 \text{ cm}^3$$

Q16.

Answer :

(b) 486 sq cm

$$\text{Diagonal} = \sqrt{3}a \text{ cm} = 9\sqrt{3} \text{ cm}$$

i.e., $a = 9$

$$\therefore \text{Total surface area} = 6a^2 = 6 \times 81 = 486 \text{ cm}^2$$

Q17.

Answer :

(d) If each side of the cube is doubled, its volume becomes 8 times the original volume.

Let the original side be a units.

Then original volume = a^3 cubic units

Now, new side = $2a$ units

Then new volume = $(2a)^3$ sq units = $8a^3$ cubic units

Thus, the volume becomes 8 times the original volume.

Q18.

Answer :

(b) becomes 4 times.

Let the side of the cube be a units.

Surface area = $6a^2$ sq units

Now, new side = $2a$ units

New surface area = $6(2a)^2$ sq units = $24a^2$ sq units.

Thus, the surface area becomes 4 times the original area.

Q19.

Answer :

(a) 12 cm

$$\text{Total volume} = 6^3 + 8^3 + 10^3 = 216 + 512 + 1000 = 1728 \text{ cm}^3$$

$$\therefore \text{Edge of the new cube} = \sqrt[3]{1728} = 12 \text{ cm}$$

Q20.

Answer :

(d) 625 cm^3

Length of the cuboid so formed = 25 cm

Breadth of the cuboid = 5 cm

Height of the cuboid = 5 cm

$$\therefore \text{Volume of cuboid} = 25 \times 5 \times 5 = 625 \text{ cm}^3$$

Q21.

Answer :

(d) 44 m^3

Diameter = 2 m

Radius = 1 m

Height = 14 m

$$\therefore \text{Volume} = \pi r^2 h = \frac{22}{7} \times 1 \times 1 \times 14 = 44 \text{ m}^3$$

Q22.

Answer :

(b) 12 m

Diameter = 14 m

Radius = 7 m

Volume = 1848 m³

Now, volume = $\pi r^2 h = \frac{22}{7} \times 7 \times 7 \times h = 1848 \text{ m}^3$

$\therefore h = \frac{1848}{22 \times 7} = 12 \text{ m}$

Q23.

Answer :

(c) 4 : 3

Here,

$$\begin{aligned}\frac{\text{Total surface area}}{\text{Lateral surface area}} &= \frac{2\pi r(h+r)}{2\pi rh} \\ &= \frac{h+r}{h} \\ &= \frac{20+60}{60} \\ &= \frac{4}{3} \\ &= 4 : 3\end{aligned}$$

Q24.

Answer :

(d) 640

$$\text{Total no. of coins} = \frac{\text{volume of cylinder}}{\text{volume of each coin}} = \frac{\pi \times 3 \times 3 \times 8}{\pi \times 0.75 \times 0.75 \times 0.2} = 640$$

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