



### Exercise 20C

Q1.

**Answer :**

(b) 17

Length of the diagonal of a cuboid =  $\sqrt{l^2 + b^2 + h^2}$

$$\therefore \sqrt{l^2 + b^2 + h^2} = \sqrt{12^2 + 9^2 + 8^2} = \sqrt{144 + 81 + 64} = \sqrt{289} = 17 \text{ cm}$$

Q2.

**Answer :**

(b)  $125 \text{ cm}^3$

Total surface area =  $6a^2 = 150 \text{ cm}^2$ , where  $a$  is the length of the edge of the cube.

$$\Rightarrow 6a^2 = 150$$

$$\Rightarrow a = \sqrt{\frac{150}{6}} = \sqrt{25} = 5 \text{ cm}$$

$$\therefore \text{Volume} = a^3 = 5^3 = 125 \text{ cm}^3$$

Q3.

**Answer :**

(c)  $294 \text{ cm}^2$

$$\text{Volume} = a^3 = 343 \text{ cm}^3$$

$$\Rightarrow a = \sqrt[3]{343} = 7 \text{ cm}$$

$$\therefore \text{Total surface area} = 6a^2 = 6 \times 7 \times 7 = 294 \text{ cm}^2$$

Q4.

**Answer :**

(c)  $294 \text{ cm}^2$

$$\text{Volume} = a^3 = 343 \text{ cm}^3$$

$$\Rightarrow a = \sqrt[3]{343} = 7 \text{ cm}$$

$$\therefore \text{Total surface area} = 6a^2 = 6 \times 7 \times 7 = 294 \text{ cm}^2$$

Q5.

**Answer :**

(c) 6400

$$\text{Volume of each brick} = 25 \times 11.25 \times 6 = 1687.5 \text{ cm}^3$$

$$\text{Volume of the wall} = 800 \times 600 \times 22.5 = 10800000 \text{ cm}^3$$

$$\therefore \text{No. of bricks} = \frac{10800000}{1687.5} = 6400$$

Q6.

**Answer :**

(c) 1000

$$\text{Volume of the smaller cube} = (10 \text{ cm})^3 = 1000 \text{ cm}^3$$

$$\text{Volume of box} = (100 \text{ cm})^3 = 1000000 \text{ cm}^3 \quad [1 \text{ m} = 100 \text{ cm}]$$

$$\therefore \text{Total no. of cubes} = \frac{100 \times 100 \times 100}{10 \times 10 \times 10} = 1000$$

Q7.

**Answer :**

(a)  $48 \text{ cm}^3$

Let  $a$  be the length of the smallest edge.

Then the edges are in the proportion  $a : 2a : 3a$ .

$$\text{Now, surface area} = 2(a \times 2a + a \times 3a + 2a \times 3a) = 2(2a^2 + 3a^2 + 6a^2) = 22a^2 = 88 \text{ cm}^2$$

$$\Rightarrow a = \sqrt{\frac{88}{22}} = \sqrt{4} = 2$$

Also,  $2a = 4$  and  $3a = 6$

$$\therefore \text{Volume} = a \times 2a \times 3a = 2 \times 4 \times 6 = 48 \text{ cm}^3$$

Q8.

**Answer :**

(b) 1: 9

$$\frac{\text{Volume } 1}{\text{Volume } 2} = \frac{1}{27} = \frac{a^3}{b^3}$$

$$\Rightarrow a = \frac{b}{\sqrt[3]{27}} = \frac{b}{3} \text{ or } b = 3a \text{ or } \frac{b}{a} = 3$$

$$\text{Now, } \frac{\text{surface area } 1}{\text{surface area } 2} = \frac{6a^2}{6b^2} = \frac{a^2}{b^2} = \frac{(b/3)^2}{b^2} = \frac{1}{9}$$

$\therefore$  Ratio of the surface areas = 1 : 9

Q9.

**Answer :**

(c) 164 sq cm

$$\text{Surface area} = 2(10 \times 4 + 10 \times 3 + 4 \times 3) = 2(40 + 30 + 12) = 164 \text{ cm}^2$$

Q10.

**Answer :**

(c) 36 kg

$$\text{Volume of the iron beam} = 9 \times 0.4 \times 0.2 = 0.72 \text{ m}^3$$

$$\therefore \text{Weight} = 0.72 \times 50 = 36 \text{ kg}$$

Q11.

**Answer :**

(a) 2 m

$$42000 \text{ L} = 42 \text{ m}^3$$

$$\text{Volume} = lbh$$

$$\therefore \text{Height } (h) = \frac{\text{volume}}{lb} = \frac{42}{6 \times 3.5} = \frac{6}{6 \times 0.5} = 2 \text{ m}$$

Q12.

**Answer :**

(b) 88

\*\*\*\*\*END\*\*\*\*\*