



Exercise 20A

Q9.

Answer :

$$\text{Volume of the brick} = 25 \times 13.5 \times 6 = 2025 \text{ cm}^3$$

$$\text{Volume of the wall} = 800 \times 540 \times 33 = 14256000 \text{ cm}^3$$

$$\text{Total number of bricks} = \frac{\text{Volume of the wall}}{\text{Volume of each brick}} = \frac{14256000}{2025} = 7040 \text{ bricks}$$

Q10.

Answer :

$$\text{Volume of the wall} = 1500 \times 30 \times 400 = 18000000 \text{ cm}^3$$

$$\text{Total quantity of mortar} = \frac{1}{12} \times 18000000 = 1500000 \text{ cm}^3$$

$$\therefore \text{Volume of the bricks} = 18000000 - 1500000 = 16500000 \text{ cm}^3$$

$$\text{Volume of a single brick} = 22 \times 12.5 \times 7.5 = 2062.5 \text{ cm}^3$$

$$\therefore \text{Total number of bricks} = \frac{\text{Total volume of the bricks}}{\text{Volume of a single brick}} = \frac{16500000}{2062.5} = 8000 \text{ bricks}$$

Q11.

Answer :

$$\text{Volume of the cistern} = 11.2 \times 6 \times 5.8 = 389.76 \text{ m}^3 = 389.76 \times 1000 = 389760 \text{ litres}$$

$$\begin{aligned} \text{Area of the iron sheet required to make this cistern} &= \text{Total surface area of the cistern} \\ &= 2(11.2 \times 6 + 11.2 \times 5.8 + 6 \times 5.8) = 2(67.2 + 64.96 + 34.8) = 333.92 \text{ cm}^2 \end{aligned}$$

Q12.

Answer :

$$\text{Volume of the block} = 0.5 \text{ m}^3$$

We know:

$$1 \text{ hectare} = 10000 \text{ m}^2$$

$$\text{Thickness} = \frac{\text{Volume}}{\text{Area}} = \frac{0.5}{10000} = 0.00005 \text{ m} = 0.005 \text{ cm} = 0.05 \text{ mm}$$

Q13.

Answer :

$$\text{Rainfall recorded} = 5 \text{ cm} = 0.05 \text{ m}$$

$$\text{Area of the field} = 2 \text{ hectare} = 2 \times 10000 \text{ m}^2 = 20000 \text{ m}^2$$

Total rain over the field =

$$\text{Area of the field} \times \text{Height of the field} = 0.05 \times 20000 = 1000 \text{ m}^3$$

Q14.

Answer :

$$\text{Area of the cross-section of river} = 45 \times 2 = 90 \text{ m}^2$$

$$\text{Rate of flow} = 3 \frac{\text{km}}{\text{hr}} = \frac{3 \times 1000}{60} = 50 \frac{\text{m}}{\text{min}}$$

$$\text{Volume of water flowing through the cross-section in one minute} = 90 \times 50 = 4500 \text{ m}^3 \text{ per minute}$$

Q15.

Answer :

Let the depth of the pit be d m.

$$\text{Volume} = \text{Length} \times \text{width} \times \text{depth} = 5 \text{ m} \times 3.5 \text{ m} \times d \text{ m}$$

But,

$$\text{Given volume} = 14 \text{ m}^3$$

$$\therefore \text{Depth} = d = \frac{\text{volume}}{\text{length} \times \text{width}} = \frac{14}{5 \times 3.5} = 0.8 \text{ m} = 80 \text{ cm}$$

Q16.

Answer :

Capacity of the water tank = 576 litres = 0.576 m^3

Width = 90 cm = 0.9 m

Depth = 40 cm = 0.4 m

$$\text{Length} = \frac{\text{capacity}}{\text{width} \times \text{depth}} = \frac{0.576}{0.9 \times 0.4} = 1.600 \text{ m}$$

Q17.

Answer :

Volume of the beam = 1.35 m^3

Length = 5 m

Thickness = 36 cm = 0.36 m

$$\text{Width} = \frac{\text{volume}}{\text{thickness} \times \text{length}} = \frac{1.35}{5 \times 0.36} = 0.75 \text{ m} = 75 \text{ cm}$$

Q18.

Answer :

Volume = height \times area

Given:

Volume = 378 m^3

Area = 84 m^2

$$\therefore \text{Height} = \frac{\text{volume}}{\text{area}} = \frac{378}{84} = 4.5 \text{ m}$$

Q19.

Answer :

Length of the pool = 260 m

Width of the pool = 140 m

Volume of water in the pool = 54600 cubic metres

$$\therefore \text{Height of water} = \frac{\text{volume}}{\text{length} \times \text{width}} = \frac{54600}{260 \times 140} = 1.5 \text{ metres}$$

Q20.

Answer :

External length = 60 cm

External width = 45 cm

External height = 32 cm

*****END*****