



Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q15

Answer :

We are given that 1 cubic cm of marble weighs 0.25 kg

Let,

$V \rightarrow$ Volume of the block

$l \rightarrow$ Length of the block

We have,

Width of the block (b) = 28 cm

Thickness of the block (h) = 5 cm

Weight of the block (w) = 112 kg

We need to find the length of the block

We have, 0.25 kg of marble occupies 1 cm^3 of volume.

So, 112 kg of marble will occupy the volume,

$$V = \left(\frac{112}{0.25} \right) \text{ cm}^3$$

$$lbh = \frac{112}{0.25}$$

$$l(28 \times 5) = \frac{112}{0.25}$$

$$l = \frac{112}{0.25 \times 28 \times 5}$$

$$= \frac{4}{0.25 \times 5}$$

$$= \frac{16}{5}$$

$$= 3.2 \text{ cm}$$

The length of the block is 3.2 cm .

Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q16

Answer :

External dimensions of the box are,

$$\text{Length}(L) = 25 \text{ cm}$$

$$\text{Breadth}(B) = 18 \text{ cm}$$

$$\text{Height}(H) = 15 \text{ cm}$$

$$\text{Thickness of the wood}(t) = 2 \text{ cm}$$

We need to find the volume used

So, internal dimensions of the box are,

$$\text{Length}(l) = L - 2t$$

$$= 25 - 2 \times 2$$

$$= 25 - 4$$

$$= 21 \text{ cm}$$

$$\text{Breadth}(b) = B - 2t$$

$$= 18 - 2 \times 2$$

$$= 18 - 4$$

$$= 14 \text{ cm}$$

$$\text{Height}(h) = H - 2t$$

$$= 15 - 2 \times 2$$

$$= 15 - 4$$

$$= 11 \text{ cm}$$

Capacity of the box,

$$V = lbh$$

$$= 21 \times 14 \times 11$$

$$= 3234 \text{ cm}^3$$

Volume of the wood,

$$= L \times B \times H - V$$

$$= 25 \times 18 \times 15 - 3234$$

$$= 6750 - 3234$$

$$= 3516 \text{ cm}^3$$

Maximum $\boxed{3234 \text{ cm}^3}$ of liquid can be placed in the box.

Volume of the wood used in the box is $\boxed{3516 \text{ cm}^3}$.

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