Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q6

Answer :

We know that, areas of three adjacent faces of the cuboid are $lb, bh,$ and hl respectively.

Where,

$l \rightarrow$ Length of the cuboid

$b \rightarrow$ Breadth of the cuboid

$h \rightarrow$ Height of the cuboid

Let,

$V \rightarrow$ Volume of the cuboid

We have, areas of three adjacent faces of the cuboid are $8\,\text{cm}^2, 18\,\text{cm}^2$ and $25\,\text{cm}^2$ respectively.

So their product,

$$(lb)(bh)(hl) = (8)(18)(25)$$

$$(lbh)(lbh) = 3600$$

$$(lbh)^2 = 3600$$

$$V^2 = 3600 \qquad \{\text{Since, } V = (lbh)\}$$

$$V = 60\,\text{cm}^3$$

The volume of the cuboid is $\boxed{V = 60\,\text{cm}^3}$.

Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q7

Answer :

Let,

$l \rightarrow$ Length of the room

$b \rightarrow$ Breadth of the room

$h \rightarrow$ Height of the room

$V \rightarrow$ Volume of the room

We have, $b = 2h$, $l = 2b$ and volume of room is 512 dm^3

We have to find the dimensions

We know that

$$V = lbh$$

$$= (2b)b\left(\frac{b}{2}\right)$$

$$= b^3$$

We have, $V = 512\,\text{dm}^3$

$$512 = b^3$$

$$b = 8\,\text{dm}$$

$$= 0.8\,\text{m}$$

Therefore,

$$h = \frac{b}{2}$$

$$= \frac{0.8}{2}$$

$$= 0.4\,\text{m}$$

$$l = 2b$$

$$= 2 \times 0.8$$

$$= 1.6\,\text{m}$$

Hence, the dimensions of the cuboid are,

Length = $\boxed{1.6\,\text{m}}$, Breadth = $\boxed{0.8\,\text{m}}$, Height = $\boxed{0.4\,\text{m}}$

********** END **********