



Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q8

Answer :

The hall is cubical.

Let,

$l \rightarrow$ Length of the cuboids

$b \rightarrow$ Breadth of the cuboids

$h \rightarrow$ Height of the cuboids

We have,

$$l = 18\text{m}$$

$$b = 12\text{m}$$

We need to find the Height of the hall

It is given that,

The sum of the areas of the floor and the flat roof is equal to the sum of the areas of the four walls

Using abbreviations, we can write the same as,

$$2(l \times b) = 2(l + b)h$$

$$2(18 \times 12) = 2(18 + 12)h$$

$$\begin{aligned} h &= \frac{2(18 \times 12)}{2(18 + 12)} \\ &= \frac{(18 \times 12)}{30} \end{aligned}$$

$$= 7.2\text{m}$$

Height of the wall is $\boxed{7.2\text{m}}$.

Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q9

Answer :

The water tank is cubical.

So let,

$l \rightarrow$ Side of the cube

$S_1 \rightarrow$ Total surface area covered by tiles

$a \rightarrow$ Side of each square tile

$S_2 \rightarrow$ Area of each square tile

$n \rightarrow$ Number of tiles required

$r \rightarrow$ Cost of each tile

We are asked to find the total cost of the tiles

We have,

$l = 1.5 \text{ m}$.So,

$$\begin{aligned} S_1 &= 5l^2 \\ &= 5(1.5)^2 \\ &= 11.25 \text{ m}^2 \end{aligned}$$

We have,

$$\begin{aligned} a &= 25 \text{ cm} \\ &= 0.25 \text{ m} \end{aligned}$$

So;

$$\begin{aligned} S_2 &= a^2 \\ &= (0.25)^2 \text{ m} \end{aligned}$$

$$= 0.0625 \text{ m}^2$$

Now,

$$\begin{aligned} n &= \frac{S_1}{S_2} \\ &= \frac{11.25}{0.0625} \\ &= 180 \end{aligned}$$

The cost of tiles is Rs.360 per dozen.

Hence,

$$\begin{aligned} r &= \frac{\text{Rs.360}}{12} \\ &= \text{Rs.30} \end{aligned}$$

Total cost for the tiles

$$\begin{aligned} &= (n \times r) \\ &= (180 \times 30) \\ &= \text{Rs.5400} \end{aligned}$$

Hameed would spend Rs.5400 for the tiles.

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