



Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q16

**Answer :**

We are given the dimensions of the room as  $l = 12.5$  m,  $b = 9$  m,  $h = 7$  m

The lateral surface area of the room,

$$\begin{aligned} A &= 2(l + b)h \\ &= 2(12.5 + 9)7 \\ &= 14 \times 21.5 \\ &= 301.0 \text{ m}^2 \end{aligned}$$

Surface area of each door,

$$\begin{aligned} D &= (2.5 \times 1.2) \\ &= 3 \text{ m}^2 \end{aligned}$$

Surface area of each window,

$$\begin{aligned} W &= (1.5 \times 1) \\ &= 1.5 \text{ m}^2 \end{aligned}$$

There are 2 doors and 4 windows in the room.

Hence, total area to be painted,

$$\begin{aligned} A' &= A - (2D + 4W) \\ &= 301 - (2 \times 3 + 4 \times 1.5) \\ &= 301 - (6 + 6) \\ &= 289 \text{ m}^2 \end{aligned}$$

Rate of painting the wall at the rate of,  $R = \text{Rs. } 3.50/\text{m}^2$

So, total cost of painting,

$$\begin{aligned} &= A' \times R \\ &= 289 \times 3.50 \\ &= \text{Rs. } 1011.50 \end{aligned}$$

The total cost of painting is Rs.1011.50 .

Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q17

**Answer :**

The length and breadth of the hall are in the ratio 4 : 3.

Hence  $l = 4x$ ,  $b = 3x$ ,  $h = 5.5$  m

Rate of decorating the wall,  $R = 6.6$  per square meter

Total cost of decoration  $C = \text{Rs. } 5082$

We have to find the length and breadth of the room

Surface area of the walls,

$$\begin{aligned}A &= 2(l + b)h \\&= 2(4x + 3x)5.5 \\&= 14x \times 5.5 \\&= 77x \text{ m}^2\end{aligned}$$

Cost of decoration  $= A \times R$

Hence,

$$5082 = 77x \times 6.60$$

$$\begin{aligned}x &= \frac{5082}{77 \times 6.60} \\&= 10\end{aligned}$$

$$\text{Length}(l) = 4x$$

$$= 4 \times 10$$

$$= 40 \text{ m}$$

$$\text{Breadth}(b) = 3x$$

$$= 3 \times 10$$

$$= 30 \text{ m}$$

The length and breadth of the hall are 40 m and 30 m respectively.

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