



Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q4

Answer :

The dimensions of the cubical block are,

$$\text{length } (l) = 80 \text{ cm}$$

$$\text{breadth } (b) = 40 \text{ cm}$$

$$\text{height } (h) = 20 \text{ cm}$$

We are asked to find the number of square sheet paper whose side is 40 cm

Let the total surface area of the block be " S " cm^2 .

So, Mary would require in total " S " cm^2 of colored paper.

$$\begin{aligned} S &= 2(lb + bh + hl) \\ &= 2(80 \times 40 + 40 \times 20 + 20 \times 80) \\ &= 2(3200 + 800 + 1600) \\ &= 11200 \text{ cm}^2 \end{aligned}$$

But the paper is available in square sheets of side, $a = 40 \text{ cm}$

Area of a single square sheet,

$$\begin{aligned} A &= a^2 \\ &= 40^2 \\ &= 1600 \text{ cm}^2 \end{aligned}$$

The number of square sheets required=

$$\begin{aligned} &= \frac{S}{A} \\ &= \frac{11200}{1600} \\ &= 7 \end{aligned}$$

Mary would require 7 square sheets of paper.

Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q5

Answer :

Dimensions of the room are,

$$\text{length } (l) = 5 \text{ m}$$

$$\text{breadth } (b) = 4 \text{ m}$$

$$\text{height } (h) = 3 \text{ m}$$

Let,

S The total surface area to whitewash

A_1 The lateral surface area of the room

A_2 The surface area of ceiling

R The rate of whitewashing per m^2

We know that,

$$R = \text{Rs. } 7.50 \text{ per m}^2$$

We are asked to find the cost of whitewashing

Now, the total surface area to whitewash,

$$\begin{aligned} S &= A_1 + A_2 \\ &= [2(l+b)h + lb] \\ &= [2(5+4) \times 3 + 5 \times 4] \\ &= 74 \text{ m}^2 \end{aligned}$$

Total cost of whitewashing,

$$\begin{aligned} &= S \times R \\ &= (74 \text{ m}^2) \times (\text{Rs. } 7.50 \text{ per m}^2) \\ &= \text{Rs. } (74 \times 7.50) \\ &= \text{Rs. } 555 \end{aligned}$$

Hence the cost of whitewashing the room and the ceiling is Rs.555.

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