Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q12

Answer :

Volume of the gold sheet,

$$(V)=\frac{1}{2}\text{m}^3$$

Area it covers,

$$(A)=1\,\text{hectare}$$

$$=10^4\text{m}^2$$

Let,

$t \rightarrow$ Thickness of the sheet

We know that,

$$t=\frac{V}{A}$$

$$=\frac{1/2}{10^4}\text{m}$$

$$=\frac{1}{20,000}\text{m}$$

$$=\frac{1}{20,000}\times 100\,\text{cm} \qquad \{1\text{m}=100\,\text{cm}\}$$

$$=\frac{1}{200}\text{cm}$$

Thickness of the sheet is $\boxed{\frac{1}{200}\text{cm}}$.

Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q13

Answer :

Let,

$a \rightarrow$ Side of the cube

$V \rightarrow$ Volume of the cube

$a_1, a_2, a_3 \rightarrow$ Sides of the three smaller cubes

$v_1, v_2, v_3 \rightarrow$ Volumes of the three smaller cubes

We have,

$a = 12\,\text{cm}$,

$a_1 = 6\,\text{cm}$

$a_2 = 8\,\text{cm}$

We know that,

$$V = v_1 + v_2 + v_3$$

$$a^3 = a_1^3 + a_2^3 + a_3^3 \qquad \{\text{Since}, V = a^3\}$$

$$12^3 = 6^3 + 8^3 + a_3^3$$

$$1728 = 216 + 512 + a_3^3$$

$$a_3^3 = 1728 - (216 + 512)$$

$$= 1000$$

$$a_3 = 10\,\text{cm}$$

Edge of the third smaller cube is $\boxed{10\,\text{cm}}$.

Surface Areas and Volume of a Cuboid and Cube Ex 18.2 Q14

Answer :

Dimensions of the cinema hall are,

Length $(l) = 100\,\text{m}$

Breath $(b) = 50\,\text{m}$

Height $(h) = 18\,\text{m}$

Each person requires $150\,\text{m}^3$ of air (say, v)

We are asked to find the number of persons who can sit in the cinema hall

Let,

$V \rightarrow$ Volume of the hall, then

The number of people that can sit in the hall,

$$= \frac{V}{v}$$

$$= \frac{lbh}{150}$$

$$= \frac{100 \times 50 \times 18}{150}$$

$$= 600$$

Maximum $\boxed{600}$ people can sit in the hall.

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