

## Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q6 Answer:

Let.

 $a \rightarrow Side$  of each cube

 $S_1 \rightarrow \text{Surface area of each cube}$ 

So, 
$$S_1 = 6a^2$$

Hence.

Sum of surface areas of three cubes,

$$3S_1 = 3 \times 6a^2$$

 $=18a^{2}$ 

The length (say 1) of the newly formed cuboids is;

$$l = 3a$$

Its breadth (say b) and height (say h) will be the same as that of each cube.

b = a

h = a

Total surface area of the new cuboids is;

$$S_2 = 2(lb+bh+hl)$$

$$= 2(3a \times a + a \times a + a \times 3a)$$

$$= 2(7a^2)$$

$$= 14a^2$$

Required Ratio,

$$=\frac{S_2}{3S_1}$$

$$=\frac{14a^2}{18a^2}$$

$$=\frac{7}{9}$$

The total surface area of the new cuboids to that of the sum of the surface area of the three cubes is [7:9]

Surface Areas and Volume of a Cuboid and Cube Ex 18.1 Q7

## Answer:

We can define the following notations as follows

 $L \rightarrow Side of 4 cm cube$ 

 $V \rightarrow \text{Volume of 4cm}$  cube

 $l \rightarrow Side of 1cm cube$ 

 $v \rightarrow Volume of 1 cm cube$ 

Let:

 $n \rightarrow$  Number of cubes formed

 $s \rightarrow Surface$  area of a single small cube

We know,

$$V = L^3$$

$$=4^{3}$$

$$=64 \, \text{cm}^3$$

And:

$$v = l^3$$

$$=1^{3}$$

$$=1 \, \text{cm}^3$$

The number of cubes formed.

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

$$= \frac{64}{1}$$

$$= 64$$

Total surface area of all the small cubes formed

 $= n \times s$ 

$$=64\times \left(6l^2\right) \qquad \left\{s=6l^2\right\}$$

$$=64\times(6\times1^2)$$

$$=384 \, \text{cm}^2$$

The total surface area of all the small cubes is 384cm<sup>2</sup>.

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