



Cubes and Cubes Roots Ex 4.1 Q13

Answer :

Let us consider a number n . Then its cube would be n^3 .

If the number n is trebled, i.e., $3n$, we get:

$$(3n)^3 = 3^3 \times n^3 = 27n^3$$

It is evident that the cube of $3n$ is 27 times of the cube of n .

Hence, the statement is proved.

Cubes and Cubes Roots Ex 4.1 Q14

Answer :

(i)

Let us consider a number n . Its cube would be n^3 . If n is multiplied by 3, it becomes $3n$.

Let us now find the cube of $3n$, we get:

$$(3n)^3 = 3^3 \times n^3 = 27n^3$$

Therefore, the cube of $3n$ is 27 times of the cube of n .

Thus, if a number is multiplied by 3, its cube is 27 times of the cube of that number.

(ii)

Let us consider a number n . Its cube would be n^3 . If n is multiplied by 4, it becomes $4n$.

Let us now find the cube of $4n$, we get:

$$(4n)^3 = 4^3 \times n^3 = 64n^3$$

Therefore, the cube of $4n$ is 64 times of the cube of n .

Thus, if a number is multiplied by 4, its cube is 64 times of the cube of that number.

(iii)

Let us consider a number n . Its cube would be n^3 . If the number n is multiplied by 5, it becomes $5n$.

Let us now find the cube of $5n$, we get:

$$(5n)^3 = 5^3 \times n^3 = 125n^3$$

Therefore, the cube of $5n$ is 125 times of the cube of n .

Thus, if a number is multiplied by 5, its cube is 125 times of the cube of that number.

Cubes and Cubes Roots Ex 4.1 Q15

Answer :

Area of a face of cube is given by:

$$A = s^2, \text{ where } s = \text{Side of the cube}$$

Further, volume of a cube is given by:

$$V = s^3, \text{ where } s = \text{Side of the cube}$$

It is given that the area of one face of the cube is 64 m^2 . Therefore we have:

$$s^2 = 64 \Rightarrow s = \sqrt{64} = 8 \text{ m}$$

Now, volume is given by:

$$V = s^3 = 8^3 \Rightarrow V = 8 \times 8 \times 8 = 512 \text{ m}^3$$

Thus, the volume of the cube is 512 m^3 .

Cubes and Cubes Roots Ex 4.1 Q16

Answer :

Surface area of a cube is given by:

$$SA = 6s^2, \text{ where } s = \text{Side of the cube}$$

Further, volume of a cube is given by:

$$V = s^3, \text{ where } s = \text{Side of the cube}$$

It is given that the surface area of the cube is 384 m^2 . Therefore, we have:

$$6s^2 = 384 \Rightarrow s = \sqrt{\frac{384}{6}} = \sqrt{64} = 8 \text{ m}$$

Now, volume is given by:

$$V = s^3 = 8^3 \Rightarrow V = 8 \times 8 \times 8 = 512 \text{ m}^3$$

Thus, the required volume is 512 m^3 .

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