



### Surface Area and volume of A Right Circular cone Ex 20.1 Q12

**Answer :**

The formula of the curved surface area of a cone with base radius ' $r$ ' and slant height ' $l$ ' is given as

Curved Surface Area =  $\pi rl$

Now there are two cones with base radius and slant heights as  $r_1$ ,  $l_1$  and  $r_2$ ,  $l_2$  respectively.

Since the base diameters of both the cones are equal we get that  $r_1 = r_2 = r$

Since only the ratio between slant heights of the two cones is given as 4: 3, we shall use them by introducing a constant ' $k$ '

So, now  $l_1 = 4k$

$l_2 = 3k$

Using these values we shall evaluate the ratio between the curved surface areas of the two cones

$$\begin{aligned}\frac{C.S.A_1}{C.S.A_2} &= \frac{\pi r_1 l_1}{\pi r_2 l_2} \\ &= \frac{\pi r(4k)}{\pi r(3k)} \\ &= \frac{4}{3}\end{aligned}$$

Hence the ratio between the curved surface areas of the two cones with the mentioned dimensions is

**4:3**

### Surface Area and volume of A Right Circular cone Ex 20.1 Q13

**Answer :**

The formula of the curved surface area of a cone with base radius ' $r$ ' and slant height ' $l$ ' is given as

Curved Surface Area =  $\pi rl$

Now there are two cones with base radius, slant height and Curved Surface Area (C.S.A) as  $r_1$ ,  $l_1$ ,

$C.S.A_1$ ,  $r_2$ ,  $l_2$ ,  $C.S.A_2$  respectively.

It is given that  $C.S.A_1 = 2(C.S.A_2)$  and also that  $l_2 = 2(l_1)$ . Or this can also be written as

$$\begin{aligned}\frac{l_2}{l_1} &= 2 \\ \frac{C.S.A_1}{C.S.A_2} &= \frac{\pi r_1 l_1}{\pi r_2 l_2} \\ \frac{2(C.S.A_2)}{C.S.A_2} &= \frac{\pi r_1 l_1}{\pi r_2 l_2} \\ \frac{r_1}{r_2} &= \frac{2l_2}{l_1} \\ \frac{r_1}{r_2} &= \frac{(2)(2)}{1} \\ \frac{r_1}{r_2} &= \frac{4}{1}\end{aligned}$$

Therefore the ratio between the base radii of the two cones is **4:1**

### Surface Area and volume of A Right Circular cone Ex 20.1 Q14

**Answer :**

The formula of the curved surface area of a cone with base radius ' $r$ ' and slant height ' $l$ ' is given as

Curved Surface Area =  $\pi rl$

Now there are two cones with base radius and slant heights as  $r_1$ ,  $l_1$  and  $r_2$ ,  $l_2$  respectively.

Since the base diameters of both the cones are equal we get that  $r_1 = r_2 = r$

Since only the ratio between slant heights of the two cones is given as 5: 4, we shall use them by introducing a constant ' $k$ '

So, now

$l_1 = 5k$

$l_2 = 4k$

Using these values we shall evaluate the ratio between the curved surface areas of the two cones

$$\begin{aligned}\frac{C.S.A_1}{C.S.A_2} &= \frac{\pi r_1 l_1}{\pi r_2 l_2} \\ &= \frac{\pi r(5k)}{\pi r(4k)} \\ &= \frac{5}{4}\end{aligned}$$

Hence the ratio between the curved surface areas of the two cones with the mentioned dimensions is **5:4**

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