Surface Area and volume of A Right Circular cylinder Ex 19.2 Q15

Answer :

Given data is as follows:

Curved Surface Area = 267 m^2

Volume = 924 m^3

We have to find the height and diameter of this cylinder.

We know that,

Volume = $\pi r^2 h$

$\pi r^2 h = 924$

$(\pi rh)r = 924$ .....(1)

Also, it is given that

Curved Surface Area = 267

That is,

$2\pi rh = 264$

$\pi rh = \frac{264}{2}$ .....(2)

Now let us replace the value of πrh in equation (1). We get,

$\left(\frac{264}{2}\right) \times r = 924$

$r = 7$

Therefore, diameter = 7×2

= 14 cm

Substitute the value of r in equation (2). We get,

$\frac{22}{7} \times 7 \times h = \frac{264}{2}$

$h = 6$

Therefore, the answer to this question is,

Diameter of the cylinder = 14 m

Height of the cylinder = 6 m

Surface Area and volume of A Right Circular cylinder Ex 19.2 Q16

Answer :

Given data is as follows:

$$\frac{h_1}{h_2} = \frac{1}{2}$$

$$\text{Volume of cylinder}_1 = \text{Volume of cylinder}_2$$

We have to find the ratio of their radii

Since the volumes of the two cylinders are equal,

$$\frac{\text{Volume of cylinder}_1}{\text{Volume of cylinder}_2} = 1$$

$$\frac{\pi r_1^2 h_1}{\pi r_2^2 h_2} = 1$$

$$\left(\frac{r_1}{r_2}\right)^2 \left(\frac{h_1}{h_2}\right) = 1$$

But it is given that,

$$\frac{h_1}{h_2} = \frac{1}{2}$$

Therefore,

$$\left(\frac{r_1}{r_2}\right)^2 \times \frac{1}{2} = 1$$

$$\left(\frac{r_1}{r_2}\right)^2 = 2$$

$$\left(\frac{r_1}{r_2}\right)^2 = \frac{2}{1}$$

$$\frac{r_1}{r_2} = \frac{\sqrt{2}}{1}$$

Therefore, the ratio of the radii of the two cylinders is $\sqrt{2}:1$

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