Surface Area and volume of A Right Circular cylinder Ex 19.2 Q7

Answer :

Given data is as follows:

$h = 63$ cm

Girth is nothing but the outer circumference of the roller, which is 440 cm.

Thickness of the roller = 4 cm

We have to find the volume of the roller.

We have been given the outer circumference of the roller. Let R be the external radius.

We have,

$2\pi R = 440$

$2 \times \frac{22}{7} \times R = 440$

$R = 70$

Also, thickness of the cylinder is given which is 4 cm. So we can easily find out the inner radius 'r'.

$r = R - 4$

$= 70 - 4$

$= 66cm$

Now, since we know both inner and outer radii, we can easily find out the volume of the hollow cylinder.

Volume = $\pi(R^2 - r^2)h$

$= \frac{22}{7} \times (70^2 - 66^2) \times 63$

$$= \frac{22}{7} \times 4 \times 136 \times 63$$

$$\boxed{\text{Volume} = 107712 cm^3}$$

Surface Area and volume of A Right Circular cylinder Ex 19.2 Q8

Answer :

Given data is as follows:

Total Surface Area = 231 cm^2

Curved Surface Area = $\frac{2}{3}$(Total Surface Area)

We have to find the volume of the cylinder.

We have,

Total Surface Area = 231 cm^2

$2\pi rh + 2\pi r^2 = 231$

Where, $2\pi rh$ is nothing but the Curved Surface Area.

Curved Surface Area = $\frac{2}{3}$(Total Surface Area)

Curved Surface Area= $\frac{2}{3} \times 231 = 154$

Let us replace $2\pi rh$ in the above equation with the value of Curved Surface Area we have just obtained.

$154 + 2\pi r^2 = 231$

$2\pi r^2 = 77$

$2 \times \frac{22}{7} \times r^2 = 77$

$r^2 = \frac{77 \times 7}{2 \times 22} = \frac{7 \times 7}{2 \times 2}$

$r = \frac{7}{2}$

Now, let us find the value of h by using the Curved Surface Area.

Curved Surface Area=154 cm^2

$2\pi rh=154$

Since we know that $r=\frac{7}{2}$,

$2\times\frac{22}{7}\times\frac{7}{2}\times h=154$

$h=7$

Now that we know the value of both h and r, we can easily find the volume of the cylinder.

Volume of the cylinder = $\pi r^2 h$

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

Volume of the cylinder=$269.5cm^3$

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