Surface Area and volume of A Right Circular cylinder Ex 19.2 Q11

Answer :

Data given is as follows:

$$\frac{\text{Curved Surface Area}}{\text{Total Surface Area}}=\left(\frac{1}{2}\right)$$

$$\text{Total Surface Area}=616\ \text{cm}^2$$

We have to find the volume of the cylinder.

From the given data we have,

$$\frac{\text{Curved Surface Area}}{\text{Total Surface Area}}=\left(\frac{1}{2}\right)$$

$$\text{Curved Surface Area}=\left(\frac{1}{2}\right)\times\text{Total Surface Area}$$

$$=\left(\frac{1}{2}\right)\times 616\ \text{cm}^2$$

$$=308\ \text{cm}^2$$

Also,

$$\frac{\text{Curved Surface Area}}{\text{Total Surface Area}}=\left(\frac{1}{2}\right)$$

$$\frac{2\pi rh}{2\pi rh+2\pi r^2}=\frac{1}{2}$$

$$\frac{h}{h+r}=\frac{1}{2}$$

$$2h=h+r$$

$$h=r$$

$$2\times\frac{22}{7}\times r^2=308$$

We have found out the Curved Surface Area of the cylinder which is $308\ \text{cm}^2$.

Curved Surface Area = $308\ \text{cm}^2$

$2\pi rh=308$

Now, let us replace h with r in the above equation since in the previous step we have found that $h=r$.

$2\pi r^2=308$

$$2\times\frac{22}{7}\times r^2=308$$

$r=7$

Since $h=r$, h is also equal to 7

Volume = πr^2h

$$=\frac{22}{7}\times7\times7\times7$$

$\boxed{\text{Volume}=1078cm^3}$

Surface Area and volume of A Right Circular cylinder Ex 19.2 Q12

Answer :

Given data is as follows:

Curved Surface Area = $1320\ \text{cm}^2$

Diameter=21cm

We have to find the height and volume of the cylinder.

First of all, we have been given the diameter so let us find out the radius.

$$r=\frac{21}{2}\ \text{cm}$$

We know that,

Curved Surface Area = $2\pi rh$

Therefore,

$2\pi rh=1320$

$$2\times\frac{22}{7}\times\frac{21}{2}\times h=1320$$

$$\boxed{h=20\ \text{cm}}$$

Now that we know both r and h, we can easily find out the volume.

Volume = πr^2h

$$=\frac{22}{7}\times\frac{21}{2}\times\frac{21}{2}\times20$$

$\boxed{\text{Volume}=6930\ \text{cm}^3}$

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