Surface Area and volume of A Right Circular cone Ex 20.1 Q4

Answer :

In a cone, the vertical height 'h' is given as 21 cm and the slant height 'l' is given as 28 cm, and the area of the base is asked. The base area is given as

Base area = πr^2

To find the base radius 'r' we use the relation between r, l and h.

We know that in a cone

$l^2 = r^2 + h^2$

$r^2 = l^2 - h^2$

$r = \sqrt{l^2 - h^2}$

$= \sqrt{28^2 - 21^2}$

$= \sqrt{784 - 441}$

$= \sqrt{343}$

Therefore the base radius is, $r = \sqrt{343}$ cm.

Now, let us substitute the value of r in the formula for area of the base.

Base Area = πr^2

$= \frac{(22).(\sqrt{343})(\sqrt{343})}{7}$

$= \frac{(22).(343)}{7}$

$= 1078$

Hence, the base area of the cone with the specified dimensions is $\boxed{1078\ \text{cm}^2}$.

Surface Area and volume of A Right Circular cone Ex 20.1 Q5

Answer :

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

Total Surface Area = $\pi r(l + r)$

But we do not have the slant height. We are given that $r = 6$ cm and $h = 8$ cm. We find l using the relation

$l^2 = r^2 + h^2$

$l = \sqrt{r^2 + h^2}$

$= \sqrt{6^2 + 8^2}$

$= \sqrt{36 + 64}$

$= \sqrt{100}$

$= 10.$

Therefore, the slant height, $l = 10$ cm.

Substituting the values of $r = 6$ cm and $l = 10$ cm in the above equation and using $\pi = \frac{22}{7}$ in specified formula,

Total Surface Area = $\frac{(22).(6).(6+10)}{7}$

$= \frac{2112}{7}$

$= 301\frac{5}{7}$

Therefore the total surface area of the given cone is $\boxed{301\frac{5}{7}\ \text{cm}^2}$.

Surface Area and volume of A Right Circular cone Ex 20.1 Q6

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 = πrl

Substituting the values of $r = 5.25$ cm and $l = 10$ cm in the above equation and using $\pi = \frac{22}{7}$

Curved Surface Area = $\frac{(22).(5.25)(10)}{7}$

$= (22).(7.5)$

$= 165$

Therefore the Curved Surface Area of the cone with the specified dimensions is $\boxed{165\ \text{cm}^2}$

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