



Surface Area and volume of A Right Circular cone Ex 20.2 Q14

Answer :

The formula of the volume of a cone with base radius ' r ' and vertical height ' h ' is given as

$$\text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

It is given that the top diameter is 3.5 m. Hence the radius of the conical pit is $\frac{3.5}{2}$ m.

Substituting the values of $r = \frac{3.5}{2}$ m and $h = 12$ m in the above equation and using $\pi = \frac{22}{7}$ we get

$$\begin{aligned} \text{Volume} &= \frac{(22)(3.5)(3.5)(12)}{(7)(3)(2)(2)} \\ &= 22 \times 0.5 \times 3.5 \\ &= 38.5 \end{aligned}$$

Hence the volume of the conical pit is 38.5 m^3 or **38.5 kilo litre**

Surface Area and volume of A Right Circular cone Ex 20.2 Q15

Answer :

Given that out of the 551 m^2 , 1 m^2 has to be used for stitching, etc we are left with 550 m^2 of canvas to make a tent.

The amount of canvas needed to make the conical tent would be equal to the curved surface area of the conical tent.

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

$$\text{Curved Surface Area} = \pi r l$$

Here the C.S.A = 550 m^2 and the base radius ' r ' = 7 m. We can get the slant height ' l ' of the tent by using the formula for curved surface area.

$$\begin{aligned} l &= \frac{\text{Curved Surface Area}}{\pi r} \\ &= \frac{(550)(7)}{(22)(7)} \\ &= 25 \end{aligned}$$

Hence the slant height of the conical tent is 25 m.

The height ' h ' can be found out using the relation between r , l and h .

We know that in a cone

$$\begin{aligned} l^2 &= r^2 + h^2 \\ h^2 &= l^2 - r^2 \\ h &= \sqrt{l^2 - r^2} \\ &= \sqrt{25^2 - 7^2} \\ &= \sqrt{625 - 49} \\ &= \sqrt{576} \\ &= 24 \end{aligned}$$

Hence the height of the conical tent is 24 m.

The formula of the volume of a cone with base radius ' r ' and vertical height ' h ' is given as

$$\text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

Substituting the values of $r = 7$ m and $h = 24$ m in the above equation and using $\pi = \frac{22}{7}$ we get,

$$\begin{aligned} \text{Volume} &= \frac{(22)(7)(7)(24)}{(7)(3)} \\ &= (22) (7) (8) \\ &= 1232 \end{aligned}$$

Hence the volume of the conical tent that can be made out of the given canvas with the given dimensions is **1232 m³**

***** END *****