Surface Area and volume of A Right Circular cone Ex 20.1 Q10

Answer :

It is given that the curved surface area (C.S.A) of the cone is 792 cm^2 and that the ratio between the base radius and the slant height is 4: 7. 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

Since only the ratio between the base radius and the slant height is given, we shall use them by introducing a constant 'k'

So, $r = 4k$

$l = 7k$

Substituting the values of C.S.A, base radius, slant height and using $\pi = \frac{22}{7}$ in the above equation,

Curved Surface Area,

$792 = \frac{(22).(4k).(7k)}{7}$

$792 = 88k^2$

$9 = k^2$

Hence the value of $k = 3$.

From this we can find the value of base radius,

$r = 4k$

$r = 12$

Therefore the base radius of the cone is $\boxed{12 \text{ cm}}$.

Surface Area and volume of A Right Circular cone Ex 20.1 Q11

Answer :

The area of sheet required to make a cone would be equal to the curved surface area of the cone that is to be formed. So here we need to find the C.S.A. of a single cone and then multiply the same to arrive at the final 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

But, here we're given only that the base radius $r = 7$ cm and vertical height $h = 24$ cm.

To find the slant height 'l' to be used in the formula for Curved Surface Area we use the following relation

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

$= \sqrt{7^2 + 24^2}$

$= \sqrt{49 + 576}$

$= \sqrt{625}$

$l = 25$ cm

Now, substituting the values of $r = 7$ cm and slant height $l = 25$ cm and using $\pi = \frac{22}{7}$ in the formula of C.S.A,

We get Curved Surface Area = $\frac{(22).(7)(25)}{7}$

$= 550$

Thus the curved surface area of one cone is 550 cm^2. Since we require 10 such joker cap the required sheet area would be 10 times this value.

Hence the area of sheet required to make 10 joker caps of the specified dimensions would be

$\boxed{5500 \text{ cm}^2}$

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