Surface Area and volume of A Right Circular cone Ex 20.2 Q10

Answer:

To find the weight of the cone we first need to find its volume.

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

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

Here, the diameter is given as 14 cm. From this we get the base radius as $r = 7$ m.

Substituting the values of $r = 7$ cm and $h = 51$ cm in the above equation and using $\pi = \frac{22}{7}$

$$\text{Volume} = \frac{(22)(7)(7)(51)}{(3)(7)}$$

$$= (22)\,(7)\,(17)$$

$$= 2618$$

Hence the volume of the given cone with the specified dimensions is 2618 m³

Now, it is given that material of which the cone is made up of weighs 10 grams per cubic meter.

Hence the entire weight of the cone = (Volume of the cone) (10)

$$= (2618)\,(10)$$

$$= 26180 \text{ gram}$$

Hence the weight of the cone is $\boxed{26.18 \text{ kg}}$

Surface Area and volume of A Right Circular cone Ex 20.2 Q11

Answer:

When you rotate a right triangle about one of its sides containing the right angle the solid so formed will be a cone.

Here the right triangle has sides 6.3 cm and 10 cm and it is said that the right triangle is rotated about its longer side. So here it will be the side of 10 cm length.

So, the height of the cone thus formed will be 'h' = 10 cm, and the radius 'r' = 6.3 cm.

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 $r = 6.3$ cm and $h = 10$ cm in the above equation and using $\pi = 3.14$

$$\text{Volume} = \frac{(3.14)(6.3)(6.3)(10)}{(3)}$$

$$= \frac{1246.266}{3}$$

$$= 415.8$$

Hence the volume of the given cone with the specified dimensions is $\boxed{415.8 \text{ cm}^3}$

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

Curved Surface Area = $\pi r l$

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

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

$$= \sqrt{6.3^2 + 10^2}$$

$$= \sqrt{39.69 + 100}$$

$$= \sqrt{139.69}$$

Hence the slant height l of the cone is $\sqrt{139.69}$ cm.

Now, substituting the values of $r = 6.3$ cm and slant height $l = \sqrt{139.69}$ cm and using $\pi = 3.14$ in the formula of C.S.A,

We get Curved Surface Area = $(3.14)(6.3)(\sqrt{139.69})$

$$= 233.8$$

Hence the curved surface area of the so formed cone is $\boxed{233.8 \text{ cm}^2}$

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