Surface Area and volume of A Right Circular cylinder Ex 19.2 Q31

Answer :

Given data is as follows:
Weight of copper wire = 13.2 kg
Diameter = 4 mm
Density = 8.4 gm/cm^3
We have to find the length of the copper wire.
Given is the diameter of the wire which is 4 mm. Therefore,
$r = 2$ mm
Let us convert r from millimeter to centimeter, since density is in terms of gm/cm^3. Therefore,

$$r = \frac{2}{10} \text{ cm}$$

Also, weight of the copper wire is given in kilograms. Let us convert into grams since density is in terms of gm/cm^3. Therefore, we have,
Weight of copper wire = 13.2 × 1000 gm
= 13200 gm
We know that,
Volume × Density = Weight
Therefore,

$$\pi r^2 h \times 8.4 = 13.2$$

$$\frac{22}{7} \times \frac{2}{10} \times \frac{2}{10} \times h \times 8.4 = 13200$$

$$h = 12500cm$$

$$h = 125m$$

Hence, the length of the copper wire is 125 meters.

Surface Area and volume of A Right Circular cylinder Ex 19.2 Q32

Answer :

Given data is as follows:
Inner diameter of the well = 10 m
Height = 8.4 m
Width of embankment = 7.5 m
We have to find the height of the embankment.
Given is the diameter of the well which is 10 m. Therefore,
$r = 5$ m
The outer radius of the embankment,
R = Inner radius of the well + width of the embankment
= 5 + 7.5
= 12.5 m
Let H be the height of the embankment.
The volume of earth dug out is equal to the volume of the embankment. Therefore,
Volume of embankment = Volume of earth dug out

$$\pi\left(R^2 - r^2\right)H = \pi r^2 h$$

$$\frac{22}{7} \times (12.5^2 - 5^2) \times H = \frac{22}{7} \times 5 \times 5 \times 8.4$$

$$H = 1.6m$$

Thus, height of the embankment is 1.6 m

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