



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/cm³

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/cm³. Therefore,

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

Also, weight of the copper wire is given in kilograms. Let us convert into grams since density is in terms of gm/cm³. Therefore, we have,

Weight of copper wire = 13.2 × 1000 gm

= 13200 gm

We know that,

Volume × Density = Weight

Therefore,

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

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

$$h = 12500 \text{ cm}$$

$$h = 125 \text{ m}$$

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

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

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

$$H = 1.6 \text{ m}$$

Thus, height of the embankment is 1.6 m

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