



Surface Area and volume of A Right Circular cylinder Ex 19.2 Q19

Answer :

Given data is as follows:

Circumference = 176 cm

$h = 3 \text{ m}$

We have to find the volume of the trunk.

We know that,

Circumference = $2\pi r$

Therefore,

$$2\pi r = 176$$

$$2 \times \frac{22}{7} \times r = 176$$

$$r = 28 \text{ cm}$$

$$r = .28 \text{ m}$$

We know,

Volume = $\pi r^2 h$

$$= \frac{22}{7} \times .28 \times .28 \times 3$$

$$\text{Volume} = 0.7392 \text{ m}^3$$

Therefore, the volume of timber that can be obtained from this trunk is 0.7392 m^3

Surface Area and volume of A Right Circular cylinder Ex 19.2 Q20

Answer :

Given data is as follows:

$$r = 7 \text{ m}$$

$$h = 8 \text{ m}$$

$$R - r = 21 \text{ m}$$

We have to find the height of the embankment.

Let the height of the embankment be H meter.

From the given data we have,

Volume of earth in embankment = Volume of earth dug out

$$\text{Volume of embankment} = \pi(R^2 - r^2)H$$

$$\text{Volume of earth dug out} = \pi r^2 h$$

Therefore, we have

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

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

$$(R - r)(R + r)H = r^2 h$$

Here,

$$R - r = 21 \text{ m}$$

But,

$$r = 7 \text{ m}$$

Therefore,

$$R - 7 = 21$$

$$R = 28 \text{ m}$$

Substituting the values in the above equation, we have

$$(28 - 7)(28 + 7)H = 7 \times 7 \times 8$$

$$21 \times 35 \times H = 7 \times 7 \times 8$$

$$H = \frac{8}{15} \text{ m}$$

$$= 0.533 \text{ m}$$

$$= 53.3 \text{ cm}$$

Therefore the height of the embankment is equal to 53.3 cm

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