



Surface Area and volume of A Right Circular cylinder Ex 19.1 Q10

Answer :

Given data is as follows:

Inner diameter of the well = 3.5 m

$h = 10$ m

Rate of plastering = Rs.40 per square meter

We have to find two things,

1. Inner curved surface area
2. Total cost of plastering the inner curved surface

(i)

First of all diameter is given. Therefore, let us find out the radius.

$$r = \frac{\text{diameter}}{2} = \frac{3.5}{2}$$

Inner curved surface area = $2\pi rh$

$$= 2 \times \frac{22}{7} \times \frac{3.5}{2} \times 10$$

$$= 110 m^2$$

Inner curved surface area = $110 m^2$

(ii) Now, let us find the total cost of plastering this area.

It is given that for $1 m^2$ the cost of plastering is Rs.40

Therefore, for $110 m^2$ the cost of plastering = 110×40

$$= 4400 m^2$$

Cost of plastering = $4400 m^2$

Surface Area and volume of A Right Circular cylinder Ex 19.1 Q11

Answer :

Given data is as follows:

Diameter = 4.2m

$h = 4.5$ m

Wastage = $\frac{1}{12}$ of actual steel used

Given is the diameter which is 4.2m, therefore, $r = \frac{4.2}{2} = 2.1$

We know that,

Lateral Surface Area = $2 \times \pi \times r \times h$

$$\text{Lateral Surface Area} = 2 \times \frac{22}{7} \times 2.1 \times 4.5$$

$$\text{Lateral Surface Area} = 59.4 m^2$$

Let the actual area of steel used in making the tank be x

It is given that, area of steel wasted in making the tank is $\frac{1}{12}$ the actual area of steel present

$$\text{Therefore, area of steel wasted} = \frac{x}{12}$$

$$\text{area of steel present in the tank} = x - \frac{x}{12} = x \left(1 - \frac{1}{12} \right) = \frac{11x}{12}$$

Hence, $\frac{11x}{12} = \text{Total Surface Area}$

$$x = \frac{12}{11} \times \text{Total Surface Area}$$

$$x = \frac{12}{11} \times \left(2 \times \frac{22}{7} \times 2.1 \times 4.5 + 2 \times \frac{22}{7} \times 2.1 \times 2.1 \right)$$

$$x = \frac{12}{11} \times \left(2 \times \frac{22}{7} \times 2.1(4.5 + 2.1) \right)$$

$$x = 95.04 m^2$$

Actual area of steel used = 95.04 m²

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