

Surface Area and volume of A Right Circular cylinder Ex 19.1 Q7

Data given in the problem is as follows:

h = 7.5 cm

r = 3.5 cm

We are supposed to find the ratio between the Total Surface Area and the Curved Surface Area

Total Surface Area (TSA) = $2\pi rh + 2\pi r^2$

Curved Surface Area (CSA) = $2\pi rh$

Therefore.

 $\frac{TSA}{2\pi rh + 2\pi r^2} = \frac{2\pi rh + 2\pi r^2}{2\pi rh + 2\pi r^2}$

 $\frac{\overline{CSA}}{CSA} = \frac{2\pi rn}{2\pi rh}$ $\frac{TSA}{2\pi rh} = \frac{2\pi r(h+r)}{2\pi rh}$

TSA = (h+r)

CSA h

Substituting the values of h and r in the above expression, we have

 $\frac{TSA}{} = \frac{(7.5 + 3.5)}{}$

 $\frac{CSA}{TSA} - \frac{7.5}{11} = \frac{110}{75} = \frac{22}{15}$

CSA 7.5 75 15

Hence the ratio between Total Surface area and Curved Surface Area is $\frac{22}{15}$

Surface Area and volume of A Right Circular cylinder Ex 19.1 Q8 Answer:

Data given in the problem is as follows:

Given cylinder is a hollow cylinder

External radius (R) = 8cm

Height (h) = 10cm

Total Surface Area = 338π

We have to obtain an equation in r, where r is the inner radius of the cylinder and using this equation we have to find the thickness of the cylinder.

We know that,

Total Surface Area of a hollow cylinder = $2\pi rh + 2\pi Rh + 2\pi R^2 - 2\pi r^2$

 $2\pi rh + 2\pi Rh + 2\pi R^2 - 2\pi r^2 = 338\pi$

 $2h(r+R)+2(R^2-r^2)=338$

 $h(r+R)+(R^2-r^2)=169$

 $10(8+r)+(64-r^2)=169$

 $80 + 10r + 64 - r^2 = 169$

 $r^2 - 10r - 25 = 0$

 $r^2 - 5r - 5r - 25 = 0$

r(r-5) - 5(r-5) = 0

(r-5)(r-5)=0

Thickness = R - r = 8 - 5 = 3 cm

Thickness of the cylinder is 3 cm

Surface Area and volume of A Right Circular cylinder Ex 19.1 Q9

Answer:

It is given that,

r = 70 cm

h = 1.4 m

$$\mbox{Tin coating rate} = Rs. \frac{3.50}{1000} \ \mbox{cm}^2$$

We have to find the total cost of coating the cylinder with tin.

Let us first convert h from meters to centimeters.

h = 1.4 m

= 140 cm

Since the cylindrical vessel without lid has to be coated both on the inner side as well the outer side,

Area to be coated = $2(2\pi rh + \pi r^2)$

$$= 2\left(2 \times \frac{22}{7} \times 70 \times 140 + \frac{22}{7} \times 70 \times 70\right)$$

= 154000 cm²

Now let us find the total cost of coating this area.

For 1000 cm² the cost of coating is Rs.3.50

For 154000 cm² the cost of coating is given by $\frac{3.5 \times 154000}{1000}$ =539

Therefore the total cost of coating the vessel on both inner and outer sides is Rs.539

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