



Surface Area and volume of A Right Circular cylinder Ex 19.2 Q9

**Answer :**

Data given is as follows:

$$h = 6r$$

Total cost of painting=Rs.198

Painting rate= Rs.0.50 per square decimeter

We have to find the volume of the cylinder.

We know that,

$$\text{Total Surface Area of the cylinder} = \pi rh + 2\pi r^2$$

Also, it is given that,

$$\text{Total cost of painting} = 198$$

That is,

$$(\text{Total Surface Area of the cylinder}) \times \text{Painting rate} = 198$$

$$(\pi rh + 2\pi r^2) \times \text{Painting rate} = 198$$

$$(\pi rh + 2\pi r^2) \times .50 = 198$$

$$\pi rh + 2\pi r^2 = 396$$

In the above equation, let us replace  $h$  with  $6r$ .

$$12\pi r^2 + 2\pi r^2 = 396$$

$$14\pi r^2 = 396$$

$$14 \times \frac{22}{7} \times r^2 = 396$$

$$r = 3 \text{ decimeters}$$

$$h = 6r = 6 \times 3 = 18 \text{ decimeters}$$

$$\text{Volume of the cylinder} = \pi r^2 h$$

$$= \frac{22}{7} \times 3 \times 3 \times 18$$

$$\boxed{\text{Volume of the cylinder} = 509.14 \text{ dm}^3}$$

Surface Area and volume of A Right Circular cylinder Ex 19.2 Q10

**Answer :**

Data given is as follows:

Ratio of radii of two cylinders = 2:3

Ratio of heights of two cylinders = 5:3

We have to find out the following:

(i) Ratio of the volumes of the two cylinders

(ii) Ratio of the Curved Surface Area of the two cylinders

Let  $r_1$  and  $r_2$  be the radii of the two cylinders respectively.

Let  $h_1$  and  $h_2$  be the heights of the two cylinders respectively.

Therefore we have,

$$\frac{r_1}{r_2} = \frac{2}{3}$$

$$\frac{h_1}{h_2} = \frac{5}{3}$$

(i) Since we have to find the ratio of the volumes of the two cylinders, we have

$$\frac{\text{Volume of cylinder1}}{\text{Volume of cylinder2}} = \frac{\pi r_1^2 h_1}{\pi r_2^2 h_2}$$

$$= \left(\frac{r_1}{r_2}\right)^2 \left(\frac{h_1}{h_2}\right)$$

$$= \left(\frac{2}{3}\right)^2 \left(\frac{5}{3}\right)$$

$$\boxed{\frac{\text{Volume of cylinder1}}{\text{Volume of cylinder2}} = \left(\frac{20}{27}\right)}$$

(ii) Since we have to find the ratio of the curved surface areas of the two cylinders, we have,

$$\frac{\text{Curved Surface Area of cylinder1}}{\text{Curved Surface Area of cylinder2}} = \frac{2\pi r_1 h_1}{2\pi r_2 h_2}$$

$$= \left(\frac{r_1}{r_2}\right) \left(\frac{h_1}{h_2}\right)$$

$$= \left(\frac{2}{3}\right) \left(\frac{5}{3}\right)$$

$$\boxed{\frac{\text{Curved Surface Area of cylinder1}}{\text{Curved Surface Area of cylinder2}} = \left(\frac{10}{9}\right)}$$

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