

Exercise 13B

Question 7:

Curved surface area =
$$\frac{1}{3}$$
 × (total surface area)
= $\left(\frac{1}{3} \times 462\right)$ cm² = 154cm²

(Total surface area)- (Curved surface area)

$$= (462-154) \text{ cm}^2 = 308 \text{ cm}^2$$

 $2\Pi r^2 = 308$

$$\Rightarrow$$
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$$\Rightarrow \qquad 2 \times \frac{22}{7} \times r^2 = 308$$

$$\Rightarrow \qquad \qquad r^2 = \frac{308 \times 7}{44} = 49$$

$$\Rightarrow \qquad \qquad r = \sqrt{49} = 7cm$$

Now, curved surface area = $2\Pi rh = 154 cm^2$

=
$$2 \times \frac{22}{7} \times 7 \times h = 154 \text{ cm}^2$$

$$= h = \frac{154}{44} = 3.5 cm$$

Now, r = 7 cm and h = 3.5 cm

Volume of the cylinder= $(\Pi r^2 h)$

$$= \left(\frac{22}{7} \times 7 \times 7 \times 3.5\right) \text{cm}^3$$
$$= 539 \text{cm}^3$$

The volume of the cylinder = 539 cm³.

Question 8:

Curved surface area = $\frac{2}{3}$ × (total surface area)

$$=\left(\frac{2}{3}\times231\right)$$
cm² = 154 cm²

(Total surface area) - (Curved surface area)

$$= (231 - 154) \text{ cm}^2 = 77 \text{ cm}^2$$

$$2\pi r^2 = 77 \text{ cm}^2$$

$$\Rightarrow 2 \times \frac{22}{7} \times r^2 = 77$$

$$\Rightarrow r^2 = \frac{77 \times 7}{44} = \frac{49}{4}$$

$$\Rightarrow r^{2} = \frac{77 \times 7}{44} = \frac{49}{4}$$

$$\Rightarrow r = \sqrt{\frac{49}{4}} = \frac{7}{2} \text{ cm}$$

Now,
$$2\pi rh = 154 \text{ cm}^2$$

$$\Rightarrow$$
 $2 \times \frac{22}{7} \times \frac{7}{2} \times h = 154 \text{ cm}^2$

$$\Rightarrow h = \frac{154}{22} = 7 \text{ cm}$$

Now, $r = \frac{7}{2}$ cm and h = 7 cm

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

$$= \left(\frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 7\right) \text{cm}^3$$

$$=269.5 \text{ cm}^3$$

Volume of the cylinder = 269.5 cm³

******* END *******