

CHAPTER 13

Surface areas and Volumes

Example:

Find the slant height and vertical height of a cone with radius 5.6 cm and curved surface area 158.4 cm^2 .

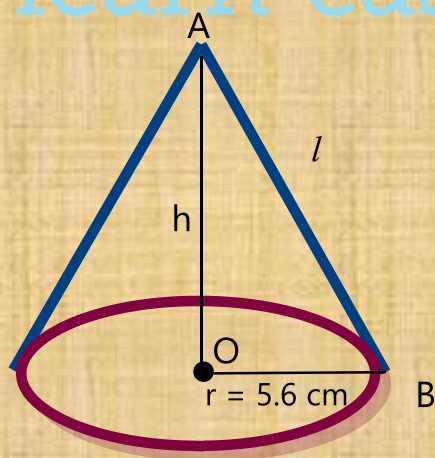
Sol.

Given,

Radius (r) = 5.6 cm

Vertical height = h cm

Slant height = l cm



Curved surface area of cone = $\pi r l = 158.4$

$$\Rightarrow \frac{22}{7} \times 5.6 \times l = 158.4$$

$$\Rightarrow l = \frac{158.4 \times 7}{22 \times 5.6}$$

$$= \frac{18}{2}$$

$$l = 9 \text{ cm}$$

We know,

$$l^2 = r^2 + h^2$$

$$h^2 = l^2 - r^2 = 9^2 - (5.6)^2$$

$$= 81 - 31.36$$

$$h^2 = 49.64$$

$$h = \sqrt{49.64}$$

$$h = 7.05 \text{ cm (Approx.)}$$

