



Exercise 13.3

- ① Diameter of the base of a cone is 10.5 cm and its slant height is 10 cm. Find its curved surface area.

→ Given:- Diameter = 10.5 cm $r = \frac{10.5 \text{ cm}}{2}$
 $l = 10 \text{ cm}$

$$\begin{aligned}\text{Curved Surface area of cone} &= \pi r l \\ &= \frac{22}{7} \times \frac{10.5}{2} \times 10 \\ &= \frac{22}{7} \times \frac{105}{20} \times 10 \\ &= \frac{22 \times 15}{2} \\ &= 165 \text{ cm}^2\end{aligned}$$

- ② Find the total surface area of a cone if its slant height is 21 m and diameter of its base is 24 m.

→ Given:- $d = 24 \text{ m}$ $r = \frac{24}{2} = 12 \text{ m}$
 $l = 21 \text{ m}$

$$\begin{aligned}
 \text{Total Surface Area of Cone} &= \pi r (r + l) \\
 &= \frac{22 \times 12 \times (21 + 12)}{7} \\
 &= \frac{22 \times 12 \times (33)}{7} \\
 &= \frac{22 \times 18 \times 33}{7} \\
 &= 1944.57 \text{ m}^2
 \end{aligned}$$

③ Curved Surface Area of a cone, if its slant height is 21m and diameter of its base is 24m is 308 cm² and its slant height is 14cm. Find

(i) radius of the base.

(ii) total surface area of the cone.

→ Given $l = 14\text{cm}$

$$\text{CSA of cone} = 308 \text{ cm}^2, r = ?$$

$$\begin{aligned}
 \text{(i) Curved Surface Area of cone} &= 308 = \frac{22 \times r \times 14}{7}
 \end{aligned}$$



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$$x = \frac{308}{22 \times 2}$$

$$x = \frac{308}{44} = 7 \text{ cm}$$

(iv)

Total surface area of the cone

$$= \frac{22 \times 7}{71} (14 + 7)$$

$$= 22 \times 21$$

$$= 462 \text{ cm}^2$$

(v)

A conical tent is 10m high and the radius of its base is 24m. Find

(i)

Slant height of the tent

(ii)

Cost of the canvas required to make the tent, If the cost of 1 m^2 canvas is ₹70.

→ Given : $h = 10 \text{ m}$, $r = 24 \text{ m}$

$$(i) l^2 = h^2 + r^2$$

$$l^2 = 10^2 + 24^2$$

$$l^2 = 100 + 576 = 676$$

$$l = \sqrt{676}$$

$$l = 26 \text{ m}$$

⑧ Curved Surface ^{area} of cone: $\pi r l$

$$= \frac{22}{7} \times 24 \times 26 \text{ m}^2$$

Cost of 1 m^2 canvas = Rs 70

$$= \frac{10}{70} \times \frac{22}{7} \times 24 \times 26$$

$$= 10 \times 22 \times 24 \times 26$$

$$= 220 \times 624$$

$$= \text{₹} 137280$$

Cost of the canvas required to make the tent = ₹ 137280.