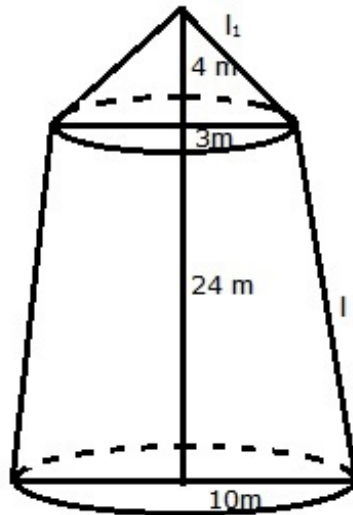




Exercise 19C

Question 6:



$R = 10\text{m}$, $r = 3\text{m}$ and $h = 24\text{m}$

Let l be the slant height of the frustum, then

$$\begin{aligned} l &= \sqrt{h^2 + (R - r)^2} \\ &= \sqrt{(24)^2 + (10 - 3)^2} \\ &= \sqrt{(24)^2 + (7)^2} \\ &= \sqrt{576 + 49} \\ &= \sqrt{625}\text{ m} = 25\text{ m} \end{aligned}$$

Let l_1 be the slant height of conical part

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

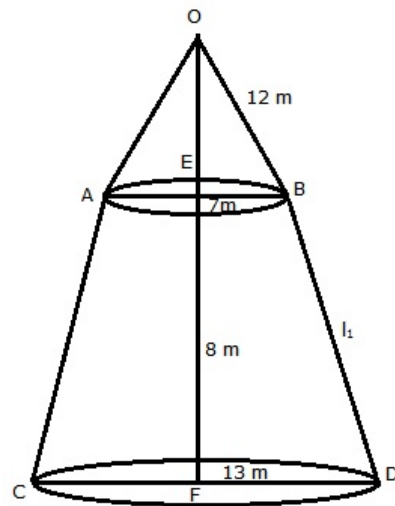
$$\text{and } h = 4\text{ m}$$

$$\begin{aligned} \therefore l_1 &= \sqrt{3^2 + 4^2}\text{ m} \\ &= \sqrt{25}\text{ m} = 5\text{ m} \end{aligned}$$

Quantity of canvas = (Lateral surface area of the frustum) + (lateral surface area of the cone)

$$\begin{aligned}
&= [\pi(R + r) + \pi r l_1] \text{ m}^2 \\
&= \pi[25 \times (10 + 3) + (3 \times 5)] \text{ m}^2 \\
&= \frac{22}{7} \times [(25 \times 13) + (3 \times 5)] \text{ m}^2 \\
&= 1068.57 \text{ m}^2
\end{aligned}$$

Question 7:



ABCD is the frustum in which upper and lower radii are EB = 7 m and FD = 13 m
Height of frustum = 8 m
Slant height l_1 of frustum

$$\begin{aligned}
&= \sqrt{h^2 + (R - r)^2} \\
&= \sqrt{8^2 + (13 - 7)^2} \\
&= \sqrt{64 + 36} \\
&= \sqrt{100} = 10 \text{ m}
\end{aligned}$$

Radius of the cone = EB = 7 m
Slant height l_2 of cone = 12 m
Surface area of canvas required

$$\begin{aligned}
&= \pi(R + r)l_1 + \pi r l_2 \\
&= \pi[(13 + 7) \times 10 + 7 \times 12] \\
&= \frac{22}{7} \times [200 + 84] = \frac{22}{7} \times 284 \text{ m}^2 \\
&= 892.6 \text{ m}^2
\end{aligned}$$

***** END *****

