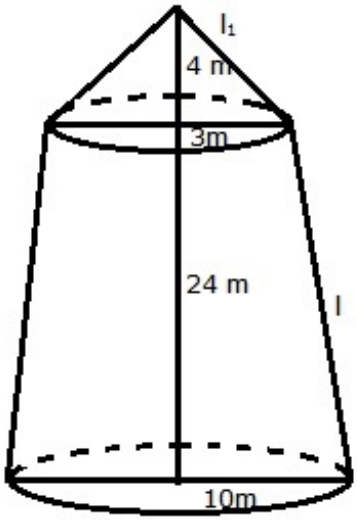
Exercise 19C

Question 6:



R = 10cm, r = 3 m and h = 24 m
Let l be the slant height of the frustum, then

$$l = \sqrt{h^2 + (R - r)^2}$$

$$= \sqrt{(24)^2 + (10 - 3)^2}$$

$$= \sqrt{(24)^2 + (7)^2}$$

$$= \sqrt{576 + 49}$$

$$= \sqrt{625}\ m = 25\ m$$

Let l_1 be the slant height of conical part

$$r = 3\ m$$

and $$h = 4\ m$$

$$\therefore \quad l_1 = \sqrt{3^2 + 4^2}\ m$$

$$= \sqrt{25}\ m = 5\ m$$

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

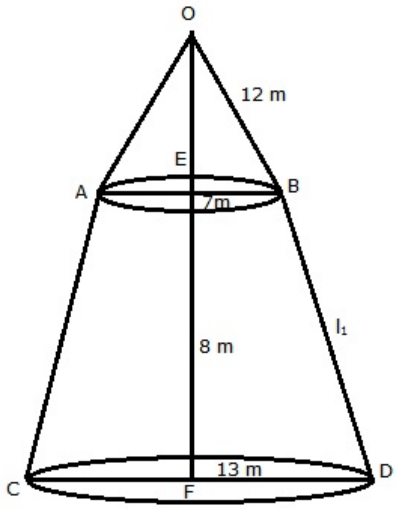
$$= \left[\pi l(R+r) + \pi r l_1\right] m^2$$

$$= \pi[25 \times (10+3) + (3 \times 5)] m^2$$

$$= \frac{22}{7} \times \left[(25 \times 13) + (3 \times 5)\right] m^2$$

$$= 1068.57 \ m^2$$

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

$$= \sqrt{h^2 + (R-r)^2}$$

$$= \sqrt{8^2 + (13-7)^2}$$

$$= \sqrt{64+36}$$

$$= \sqrt{100} = 10 \, m$$

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

$$= \pi(R+r)l_1 + \pi r l_2$$

$$= \pi\left[(13+7) \times 10 + 7 \times 12\right]$$

$$= \frac{22}{7} \times [200+84] = \frac{22}{7} \times 284 \ m^2$$

$$= 892.6 \ m^2$$

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