Exercise 13B

Question 9:

Here, $(r + h) = 37$ m $[\because \text{given}]$

And, total surface area $= 2\pi r(r + h) = 1628\, m^2$

$\Rightarrow \qquad 2\pi r \times 37 = 1628\, m^2$

$\Rightarrow \qquad 2 \times \dfrac{22}{7} \times r \times 37 = 1628$

$\Rightarrow \qquad r = \dfrac{1628 \times 7}{44 \times 37} = 7\, m$

And $\qquad (r + h) = 37\, m$

$\Rightarrow \qquad (7 + h) = 37$

$\Rightarrow \qquad h = 37 - 7 = 30\, m$

Volume $= \pi r^2 h$

$= \left(\dfrac{22}{7} \times 7 \times 7 \times 30\right) m^3 = 4620\, m^3.$

Question 10:

Curved surface area $= 2\pi rh$

Total surface area $= 2\pi r(h + r)$

Since they are in the ratio of $1 : 2$

$\therefore \qquad \dfrac{2\pi rh}{2\pi r(h + r)} = \dfrac{1}{2}$

$\Rightarrow \qquad \dfrac{h}{h + r} = \dfrac{1}{2}$

$\Rightarrow \qquad 2h = h + r$

$\Rightarrow \qquad 2h - h = r$

$\Rightarrow \qquad h = r$

$2\pi r(h + r) = 616\, cm^2$

$\Rightarrow \qquad 4\pi r^2 = 616\, cm^2 \qquad [\text{Putting } h = r]$

$\Rightarrow \qquad 4 \times \dfrac{22}{7} \times r^2 = 616$

$\Rightarrow \qquad r^2 = \dfrac{616 \times 7}{88} = 49$

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

Then, $r = 7$ cm and $h = 7$ cm

$\therefore \qquad$ Volume $= \left(\pi r^2 h\right)$

$= \left(\dfrac{22}{7} \times 7 \times 7 \times 7\right) cm^3 = 1078\, cm^3$

$\therefore$ the volume of the cylinder $= 1078\, cm^3.$

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