


**CHAPTER 11****Mensuration**

**Q2.** A rectangular sheet of paper of length 40 cm and breadth 22 cm is rolled along the breadth and the ends are joined together to form a cylinder. Find the lateral surface area and the total surface area of the cylinder.

**Sol.**

Length of paper =  $l$  = Height of the cylinder = 40 cm

  $\Rightarrow h = 40$  cm  
Breadth of paper =  $b$  = Circumference of the base = 22 cm  
 $\Rightarrow b = 2\pi r$

$$\Rightarrow 22 = 2 \times \frac{22}{7} \times r$$

$$\Rightarrow \frac{\cancel{22} \times 7}{2 \times \cancel{22}} = r$$

$$\therefore r = \frac{7}{2} \text{ cm}$$

Lateral surface area of the cylinder =  $2\pi rh$

$$= 2 \times \frac{22}{7} \times \frac{7}{2} \times \cancel{40}^{20}$$

Lateral surface area of the cylinder =  $880 \text{ cm}^2$

Area of top and bottom =  $2\pi r^2$

$$= \cancel{2} \times \frac{22}{7} \times \frac{7}{\cancel{2}} \times \frac{7}{\cancel{2}}$$

$$= 77 \text{ cm}^2$$

Total surface area of the cylinder =  $880 \text{ cm} + 77 \text{ cm}^2 = 957 \text{ cm}^2$

Total surface area of the cylinder =  $957 \text{ cm}^2$

