

## CHAPTER 11

## Mensuration

**Q3.** The radius of 80 cm wide road roller is 77cm. Calculate the number of revolutions that the roller will take to cover an area of  $96.8 \text{ m}^2$ .

**Sol.**

The road roller is in the form of a cylinder whose radius is 77 cm

$$\Rightarrow r = 77 \text{ cm}$$

Height of the cylinder  $h = 80 \text{ cm}$

The area covered by the road roller in one revolution is equal to its curved surface area.

$$\text{Area of the curved surface} = 2\pi rh$$

$$= 2 \times \frac{22}{7} \times \cancel{77}^1 \times 80$$

$$\text{Area of the curved surface} = 44 \times 11 \times 80 \text{ cm}^2$$

$$\text{Area to be covered by the road roller} = 96.8 \text{ m}^2$$

$$\Rightarrow 96.8 \times 100^2 \text{ cm}^2 = 9,68,000 \text{ cm}^2$$

$$\text{The number of revolutions} = \frac{\text{Area to be covered}}{\text{Curved surface area}}$$

$$= \frac{9,68,000}{44 \times 11 \times 80}$$

The number of revolutions that the roller will take 25.

