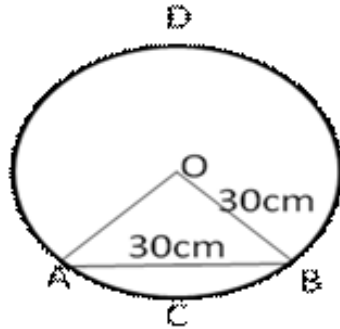




Question 74:

Let AB be the chord of circle of centre O and radius = 30 cm such that $\angle AOB = 60^\circ$



Area of the sector OACBO

$$= \frac{\pi r^2 \theta}{360} \text{ cm}^2$$

$$= \left(3.14 \times 30 \times 30 \times \frac{60}{360} \right) \text{ cm}^2$$

$$= 471 \text{ cm}^2$$

$$\text{Area of } \triangle OAB = \frac{1}{2} r^2 \sin \theta = \left(\frac{1}{2} \times 30 \times 30 \times \sin 60^\circ \right) \text{ cm}^2$$

$$= \left(\frac{1}{2} \times 30 \times 30 \times \frac{\sqrt{3}}{2} \right) \text{ cm}^2 = (225\sqrt{3}) \text{ cm}^2$$

$$= (225 \times 1.73) \text{ cm}^2 = 389.25 \text{ cm}^2$$

Area of the minor segment ACBA

$$= (\text{area of the sector OACBO}) - (\text{area of the } \triangle OAB)$$

$$= (471 - 389.25) \text{ cm}^2 = 81.75 \text{ cm}^2$$

Area of the major segment BADB

$$= (\text{area of circle}) - (\text{area of the minor segment})$$

$$= [(3.14 \times 30 \times 30) - 81.75] \text{ cm}^2 = 2744.25 \text{ cm}^2$$

Question 75:

Let the major arc be x cm long

Then, length of the minor arc = $\frac{1}{5}x$ cm

$$\text{Circumference} = \left(x + \frac{1}{5}x\right) \text{ cm} = \frac{6x}{5} \text{ cm}$$

$$\frac{6x}{5} = 2 \times \frac{22}{7} \times \frac{21}{2} \Rightarrow x = 55 \text{ cm}$$

$$\text{Required area} = \left(\frac{1}{2} \times 55 \times \frac{21}{2}\right) \text{ cm}^2$$

$$\left[\text{Area} = \frac{1}{2}rl\right]$$

$$= 288.75 \text{ cm}^2$$

Question 76:

$$\text{Radius of the front wheel} = 40 \text{ cm} = \frac{2}{5} \text{ m}$$

$$\text{Circumference of the front wheel} = \left(2\pi \times \frac{2}{5}\right) \text{ m} = \frac{4\pi}{5} \text{ m}$$

Distance moved by it in 800 revolution

$$= \left(\frac{4\pi}{5} \times 800\right) \text{ m} = (640\pi) \text{ m}$$

$$\text{Circumference of rear wheel} = (2\pi \times 1) \text{ m} = (2\pi) \text{ m}$$

$$\text{Required number of revolutions} = \left(\frac{640\pi}{2\pi}\right) = 320$$

***** END *****