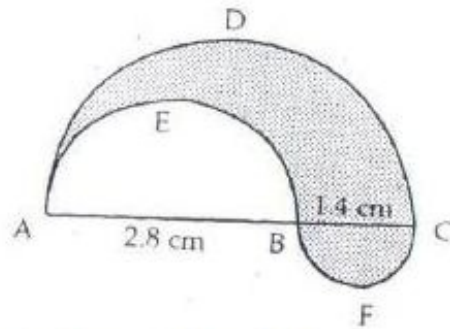




Question 49:



$$\begin{aligned}\text{Diameter } AC &= 2.8 + 1.4 \\ &= 4.2 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Radius} &= \frac{4.2}{2} \\ &= 2.1 \text{ cm}\end{aligned}$$

$$\text{Length of semi-circle } ADC = \pi r_1 = \pi \times 2.1 = 2.1 \pi \text{ cm}$$

$$\text{Diameter } AB = 2.8 \text{ cm}$$

$$\text{Radius } r_2 = 1.4 \text{ cm}$$

$$\text{Length of semi-circle } AEB = \pi r_2 = 1.4 \pi \text{ cm}$$

$$\text{Diameter } BC = 1.4 \text{ cm}$$

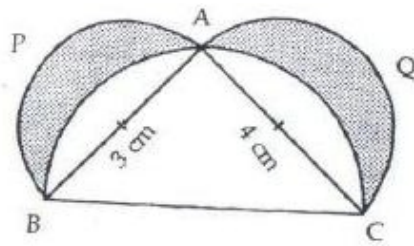
$$\text{Radius } r_3 = \frac{1.4}{2} = 0.7 \text{ cm}$$

$$\text{Length of semi-circle } BFC = \pi \times 0.7 = 0.7 \pi \text{ cm}$$

$$\therefore \text{Perimeter of shaded region} = 2.1 \pi + 1.4 \pi + 0.7 \pi = 4.2 \pi \text{ cm}$$

$$= 4.2 \times \frac{22}{7} = 13.2 \text{ cm}$$

Question 50:



Area of shaded region = Area of $\triangle ABC$ + Area of semi-circle APB
+ Area of semi circle AQC - Area of semicircle BAC

$$\text{Now, Area of a } \triangle ABC = \frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2 \text{ --- (1)}$$

$$\text{Area of semi - circle APB} = \frac{1}{2} \pi r^2 = \frac{1}{2} \pi \times \left(\frac{3}{2}\right)^2 = \frac{9}{8} \pi \text{ --- (2)}$$

$$\begin{aligned} \text{Area of semi - circle AQC} &= \frac{1}{2} \pi r^2 \\ &= \frac{1}{2} \pi \left(\frac{4}{2}\right)^2 = 2\pi \text{ cm}^2 \text{ --- (3)} \end{aligned}$$

Further in $\triangle ABC$, $\angle A = 90^\circ$

$$\therefore BC^2 = AB^2 + AC^2 = 9 + 16 = 25$$

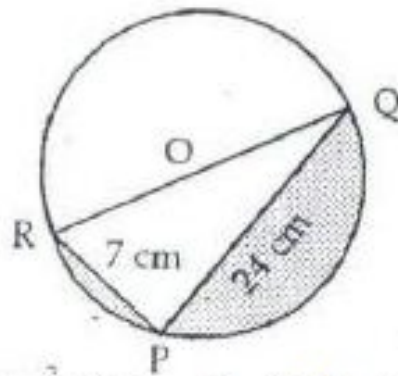
$$\therefore BC = 5$$

$$\text{Area of semi - circle BAC} = \frac{1}{2} \pi \left(\frac{5}{2}\right)^2 = \frac{25}{8} \pi \text{ --- (4)}$$

Adding (1), (2), (3) and subtracting (4)

$$\begin{aligned} \therefore \text{Area of shaded region} &= 6 + \frac{9}{8} \pi + 2\pi - \frac{25}{8} \pi \\ &= 6 + \frac{25}{8} \pi - \frac{25}{8} \pi = 6 \text{ cm}^2 \end{aligned}$$

Question 51:



In ΔPQR , $\angle P = 90^\circ$, $PQ = 24 \text{ cm}$, $PR = 7 \text{ cm}$

$$\begin{aligned}\therefore QR^2 &= RP^2 + PQ^2 = 7^2 + 24^2 \\ &= 49 + 576 = 625\end{aligned}$$

$$\therefore QR = 25 \text{ cm}$$

Area of semicircle

$$\begin{aligned}&= \frac{1}{2} \times \pi \times \left(\frac{25}{2}\right)^2 \\ &= \frac{1}{2} \times 3.14 \times \frac{25 \times 25}{4} \text{ cm}^2 \\ &= \frac{625 \times 3.14}{8} = 245.31 \text{ cm}^2\end{aligned}$$

$$\text{Area of } \Delta PQR = \frac{1}{2} \times 7 \times 24 \text{ cm}^2 = 84 \text{ cm}^2$$

$$\therefore \text{Shaded area} = 245.31 - 84 = 161.31 \text{ cm}^2$$

***** END *****