



Areas Related to Circles Ex 15.2 Q1

Answer :

The arc length l of a sector of an angle θ in a circle of radius r is given by

$$l = \frac{\theta}{360^\circ} \times 2\pi r$$

It is given that $r = 4 \text{ cm}$ and $\theta = 30^\circ$. Substituting the value of r and θ in above equation,

$$\begin{aligned} l &= \frac{30^\circ}{360^\circ} \times 2\pi \times 4 \text{ cm} \\ &= \boxed{\frac{2\pi}{3} \text{ cm}} \end{aligned}$$

Areas Related to Circles Ex 15.2 Q2

Answer :

We know that the arc length l of a sector of an angle θ in a circle of radius r is

$$l = \frac{\theta}{360^\circ} \times 2\pi r$$

It is given that $r = 5 \text{ cm}$ and length $l = \frac{5\pi}{3} \text{ cm}$. Substituting these value in above equation,

$$\begin{aligned} \frac{5\pi}{3} &= \frac{\theta}{360^\circ} \times 2\pi \times 5 \\ 5\pi \times 360^\circ &= \theta \times 2\pi \times 5 \times 3 \\ \theta &= \boxed{60^\circ} \end{aligned}$$

Hence, the angle subtended at the centre of circle is $\boxed{60^\circ}$.

Areas Related to Circles Ex 15.2 Q3

Answer :

We know that the arc length l of a sector of an angle θ in a circle of radius r is

$$l = \frac{\theta}{360^\circ} \times 2\pi r$$

It is given $l = 20\pi \text{ cm}$ and angle $\theta = 144^\circ$.

Now we substitute the value of l and θ in above formula to find the value of radius r of circle.

$$\begin{aligned} 20\pi \text{ cm} &= \frac{144^\circ}{360^\circ} \times 2\pi r \\ r &= \frac{20\pi \times 360^\circ}{2\pi \times 144^\circ} \text{ cm} \\ r &= \boxed{25 \text{ cm}} \end{aligned}$$

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