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,

$$l = \frac{30^\circ}{360^\circ} \times 2\pi \times 4 \text{ cm}$$

$$= \boxed{\frac{2\pi}{3} \text{ cm}}$$

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,

$$\frac{5\pi}{3} = \frac{\theta}{360^\circ} \times 2\pi \times 5$$

$$5\pi \times 360^\circ = \theta \times 2\pi \times 5 \times 3$$

$$\theta = \boxed{60^\circ}$$

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.

$$20\pi \text{ cm} = \frac{144^\circ}{360^\circ} \times 2\pi r$$

$$r = \frac{20\pi \times 360^\circ}{2\pi \times 144^\circ} \text{ cm}$$

$$r = \boxed{25 \text{ cm}}$$

********** END **********