

Exemplar Problem  
Trigonometry Functions

**Example 1: A circular wire of radius**

$$3cm$$

**is cut and bent so as to lie along the circumference of a hoop whose radius is  $48cm$  . Find the angle in degrees which is subtended at the centre of hoop.**

**Ans:** Given that, radius of circular wire =  $3cm$

When it is cut then its length becomes  $2\pi \times 3 = 6\pi$

Again, it is being placed along a circular hoop of radius  $48cm$ .

The length (s) of the arc =  $6\pi$

Radius of circle,  $r = 48cm$

Therefore, the angle  $\theta$  (in radian) subtended by the arc at the centre of circle is given by

$$\Rightarrow \theta = \frac{\text{Arc}}{\text{Radius}}$$

$$\Rightarrow \theta = \frac{6\pi}{48}$$

$$\Rightarrow \theta = \frac{\pi}{8}$$

$$\Rightarrow \theta = 22.5^\circ$$