

## Angular Displacement.

It is the angle described by the position vector  $\vec{r}$  about the axis of rotation.

$$\text{Angular displacement } (\theta) = \frac{\text{Linear displacement } (s)}{\text{Radius } (r)}$$

(1) Unit: radian

(2) Dimension:  $[M^0 L^0 T^0]$

(3) Vector form  $\vec{S} = \vec{\theta} \times \vec{r}$

i.e., angular displacement is a vector quantity whose direction is given by right hand rule. It is also known as axial vector. For anti-clockwise sense of rotation direction of  $\vec{\theta}$  is perpendicular to the plane, outward and along the axis of rotation and vice-versa.

(4)  $2\pi$  radian =  $360^\circ$  = 1 revolution.

(5) If a body rotates about a fixed axis then all the particles will have same angular displacement (although linear displacement will differ from particle to particle in accordance with the distance of particles from the axis of rotation).

