

Fixed-Axis Rotation

OpenStax University Physics Vol. 1

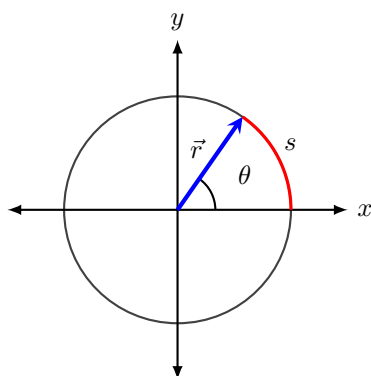
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10.1 Rotational Variables

Angular Velocity

Uniform circular motion is motion in a circle at constant speed, although this is the simplest case of rotational motion, it is used here to introduce rotational variables.

The figure shows a particle moving in a circle. Its position vector from the origin of the circle to the particle sweeps out the angle θ , which increases in the counterclockwise direction as the particle moves along its path. The angle θ is called the angular position of the particle. As the particle moves, it traces an arc length s .



The angle is related to the radius of the circle and the arc length by

$$\theta = \frac{s}{r} \quad (1)$$