Key Terms

angle of rotation the ratio of the arc length to the radius of curvature of a circular path

angular acceleration the rate of change of angular velocity with time

angular velocity ( ) the rate of change in the angular position of an object following a circular path

arc length (Δs) the distance traveled by an object along a circular path

centrifugal force a fictitious force that acts in the direction opposite the centripetal acceleration

centripetal acceleration the acceleration of an object moving in a circle, directed toward the center of the circle

centripetal force any force causing uniform circular motion

circular motion the motion of an object along a circular path

kinematics of rotational motion the relationships between rotation angle, angular velocity, angular acceleration, and time

lever arm the distance between the point of rotation (pivot point) and the location where force is applied

radius of curvature the distance between the center of a circular path and the path

rotational motion the circular motion of an object about an axis of rotation

spin rotation about an axis that goes through the center of mass of the object

tangential acceleration the acceleration in a direction tangent to the circular path of motion and in the same direction or opposite direction as the tangential velocity

tangential velocity the instantaneous linear velocity of an object in circular or rotational motion

torque the effectiveness of a force to change the rotational speed of an object

uniform circular motion the motion of an object in a circular path at constant speed