Chapter 7

**Rotational Motion**

 (7.3)

**Angular velocity of a particle in uniform circular motion**

 (7.4)

**Angular displacement for uniform circular motion**

 (7.7)

**Relationship between speed and angular speed**

(7.8)

**Angular acceleration for a particle in nonuniform circular motion**

(7.9)

**Relationship between tangential and angular acceleration**

 (7.10)

**Torque due to a force with perpendicular componentacting at a   
distance *r* from the pivot**

 (7.11)

**Torque due to a force *F* with moment arm**

 (7.21)

**Moment of inertia of a collection of particles**

**Newton’s second law for rotation** An object that experiences a net torque about the axis of rotation undergoes an angular acceleration

 (7.22)

where *I* is the moment of inertia of the object *about the rotation axis*.

 (7.23)

**Motion constraints for an object connected to a pulley of radius *R*   
by a nonslipping rope**