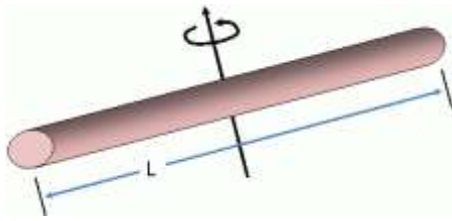
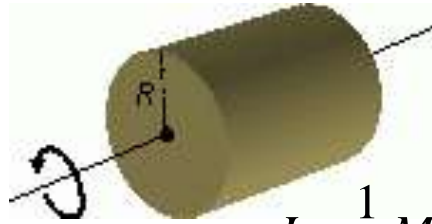


Thin rod thru centre



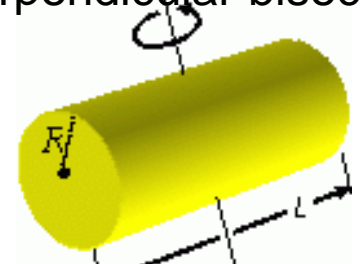
$$I = \frac{1}{12} ML^2$$

Solid disk or cylinder about symmetry axis



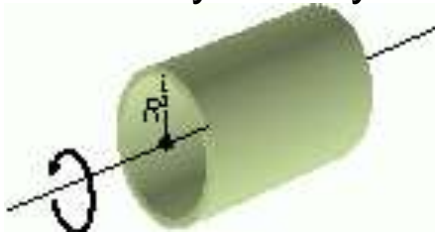
$$I = \frac{1}{2} MR^2$$

Solid disk or cylinder about perpendicular bisector



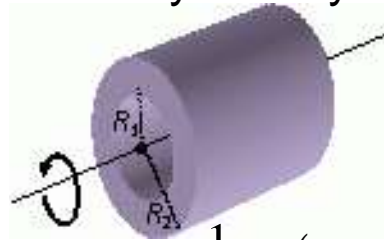
$$I = \frac{1}{4} MR^2 + \frac{1}{12} ML^2$$

Thin ring or hollow cylinder about symmetry axis



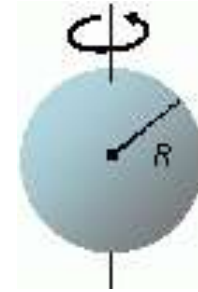
$$I = MR^2$$

Thick ring or cylinder about symmetry axis



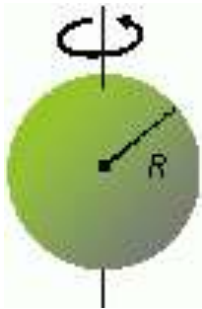
$$I = \frac{1}{4} M(R_1^2 + R_2^2)$$

Solid sphere about diameter



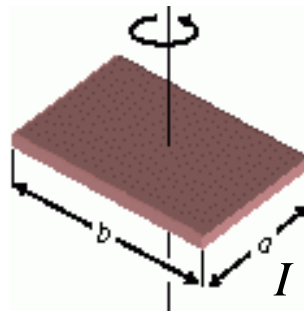
$$I = \frac{2}{5} MR^2$$

Hollow sphere about diameter



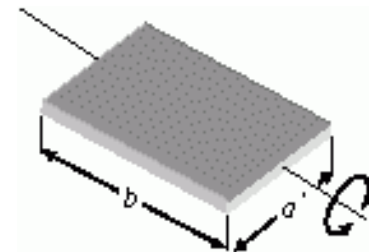
$$I = \frac{3}{5} MR^2$$

Flat plate about perpendicular axis



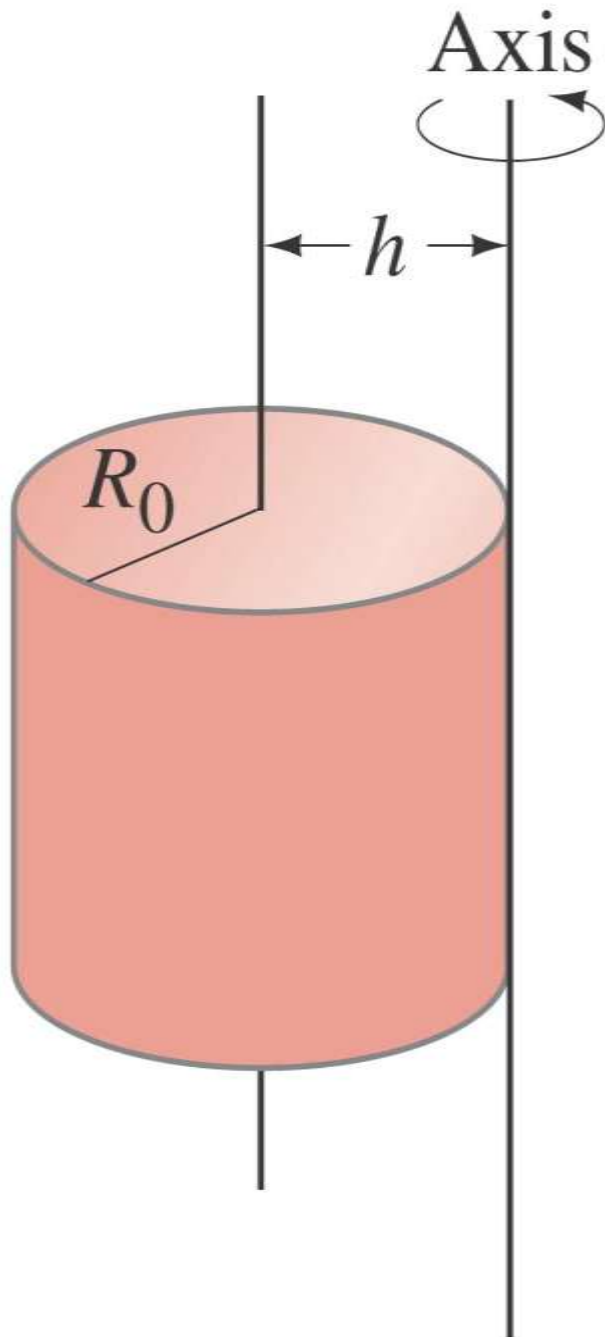
$$I = \frac{1}{12} M(a^2 + b^2)$$

Flat plate about central axis



$$I = \frac{1}{12} Ma^2$$

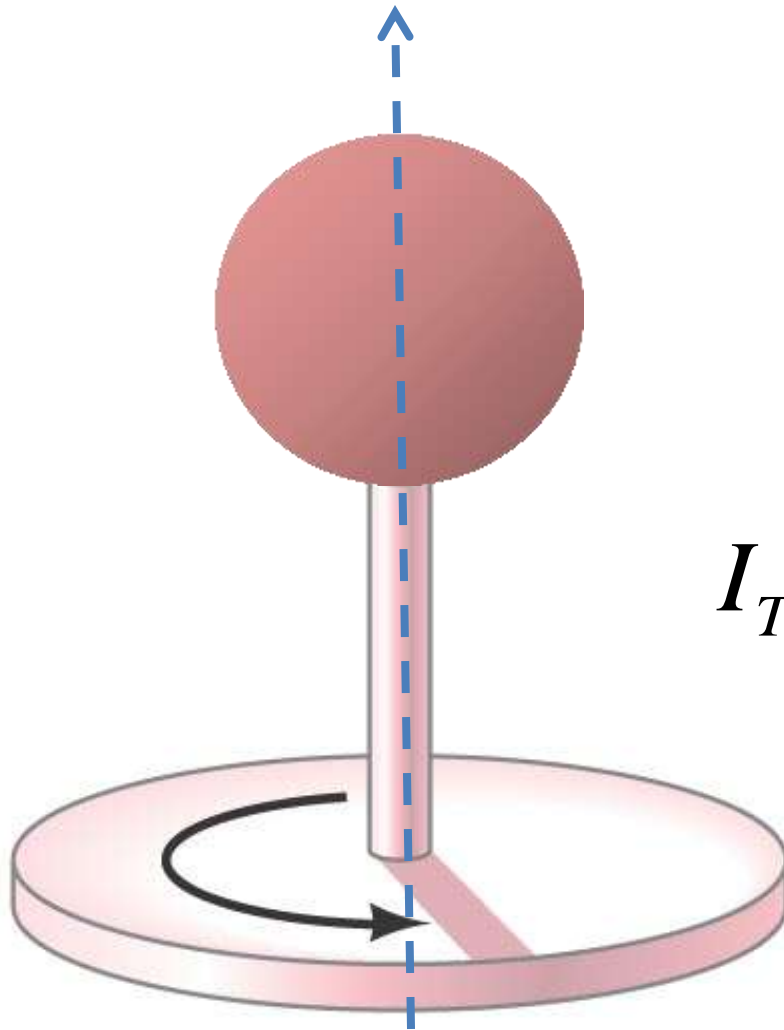
Figure 10.25



Parallel Axis Theorem

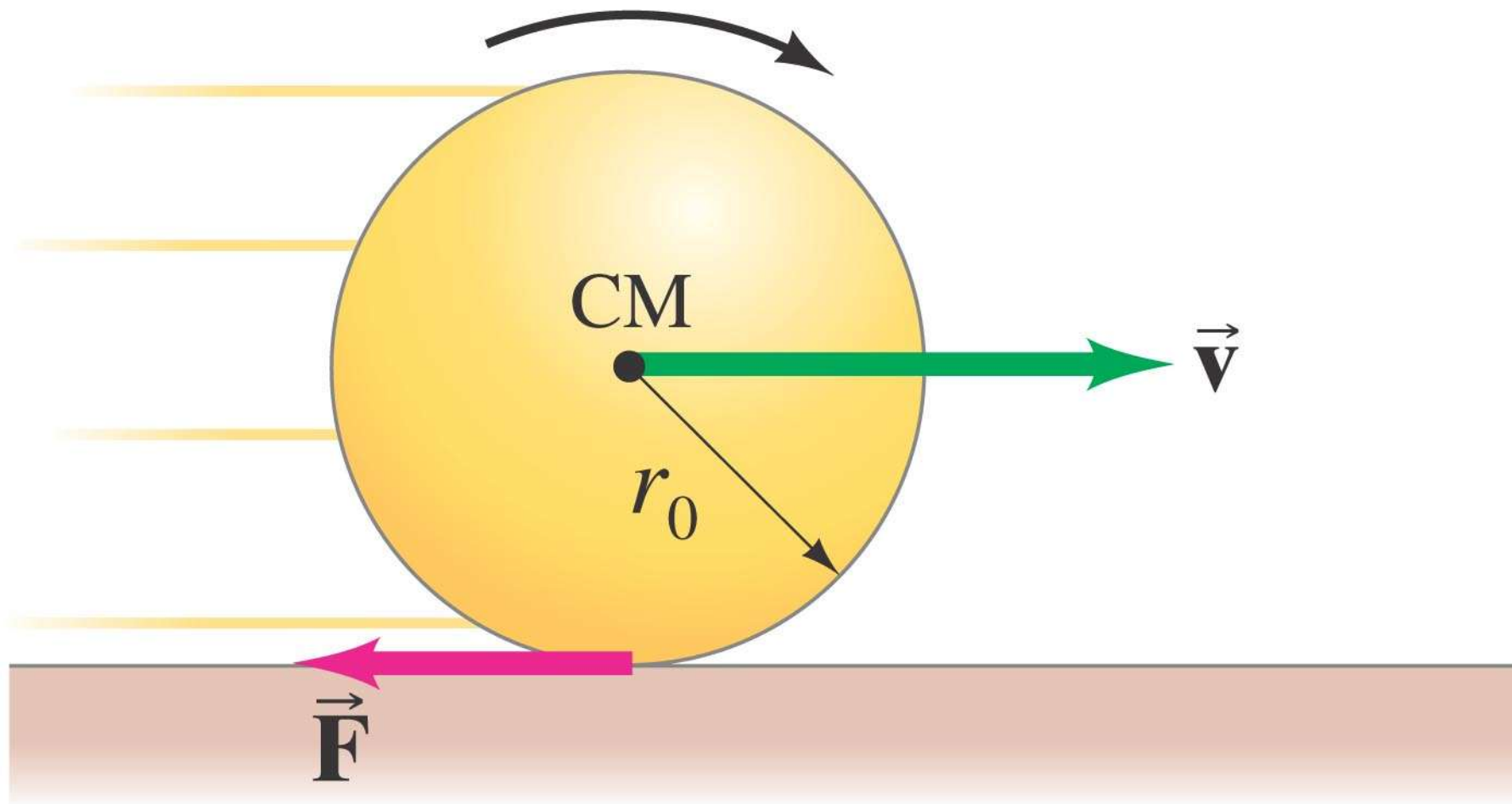
$$I_B = I_{CM} + Mh^2$$

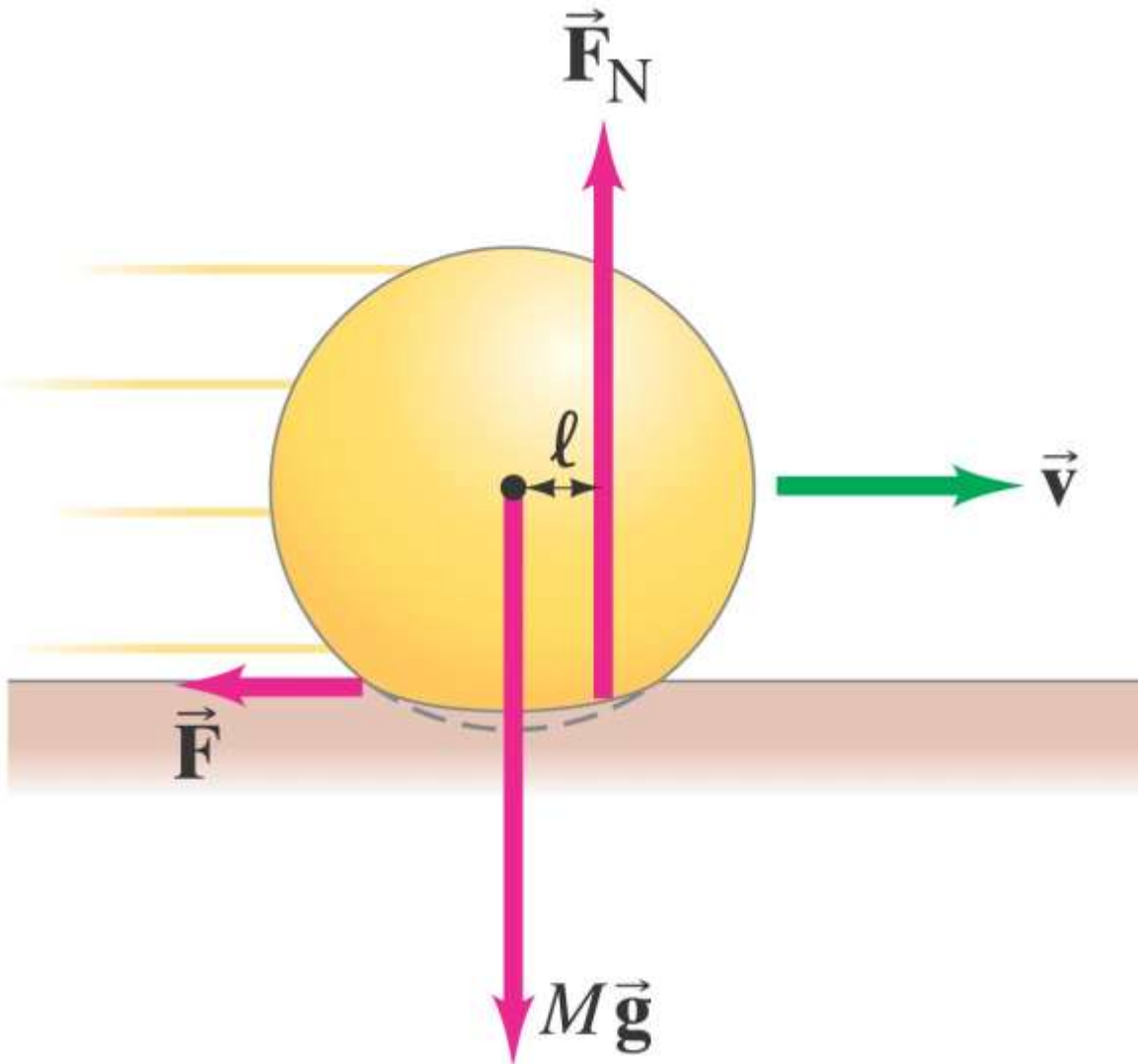
Figure 10.9a



$$I_{Total} = I_1 + I_2 + I_3 + \dots$$

(a)





- Real Surfaces deform slightly
- Reaction force leads to resistive force/torque
- Called Rolling Friction
- Very small for steel on steel
- Big for tires (lot's of deformation)