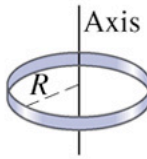
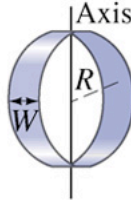
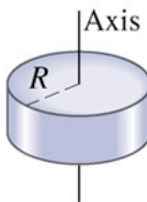
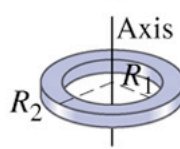
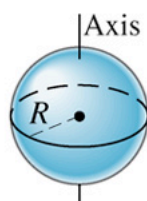
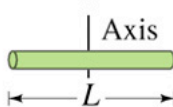
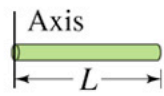
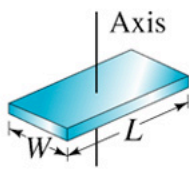


Moments of Inertia

Rotational Motion

Object	Location of axis	Diagram	Moment of inertia
(a) Thin hoop, radius R	Through center		MR^2
(b) Thin hoop, radius R width W	Through central diameter		$\frac{1}{2}MR^2 + \frac{1}{12}MW^2$
(c) Solid cylinder, radius R	Through center		$\frac{1}{2}MR^2$
(d) Hollow cylinder, inner radius R_1 outer radius R_2	Through center		$\frac{1}{2}M(R_1^2 + R_2^2)$
(e) Uniform sphere, radius R	Through center		$\frac{2}{5}MR^2$
(f) Long uniform rod, length L	Through center		$\frac{1}{12}ML^2$
(g) Long uniform rod, length L	Through end		$\frac{1}{3}ML^2$
(h) Rectangular thin plate, length L , width W	Through center		$\frac{1}{12}M(L^2 + W^2)$