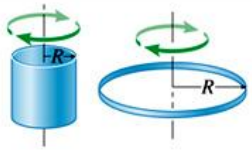
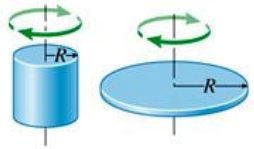
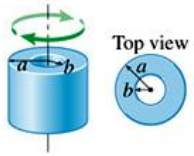
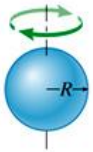
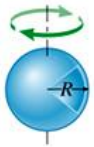
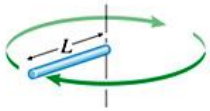
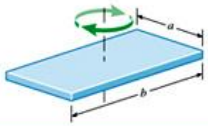
Rotational Inertia Table

- For objects with finite number of masses, use $I = \Sigma\, m\, r^2$. For "continuous" objects, use table below (p. 263 of book).

Table 8.1

Rotational Inertia for Uniform Objects with Various Geometrical Shapes

Shape	Axis of Rotation	Rotational Inertia
Thin hollow cylindrical shell (or hoop) 	Central axis of cylinder	MR^2
Solid cylinder (or disk) 	Central axis of cylinder	$\frac{1}{2}MR^2$
Hollow cylindrical shell or disk 	Central axis of cylinder	$\frac{1}{2}M(a^2 + b^2)$
Solid sphere 	Through center	$\frac{2}{5}MR^2$
Thin hollow spherical shell 	Through center	$\frac{2}{3}MR^2$
Thin rod 	Perpendicular to rod through end	$\frac{1}{3}ML^2$
Rectangular plate 	Perpendicular to plate through center	$\frac{1}{12}M(a^2 + b^2)$