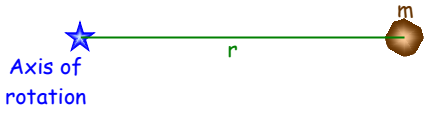
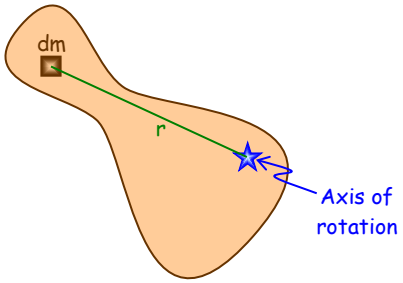
MOMENT OF INERTIA

The moment of inertia is the rotational equivalent of mass, that is, the inertia of the body that resists rotation. It is defined

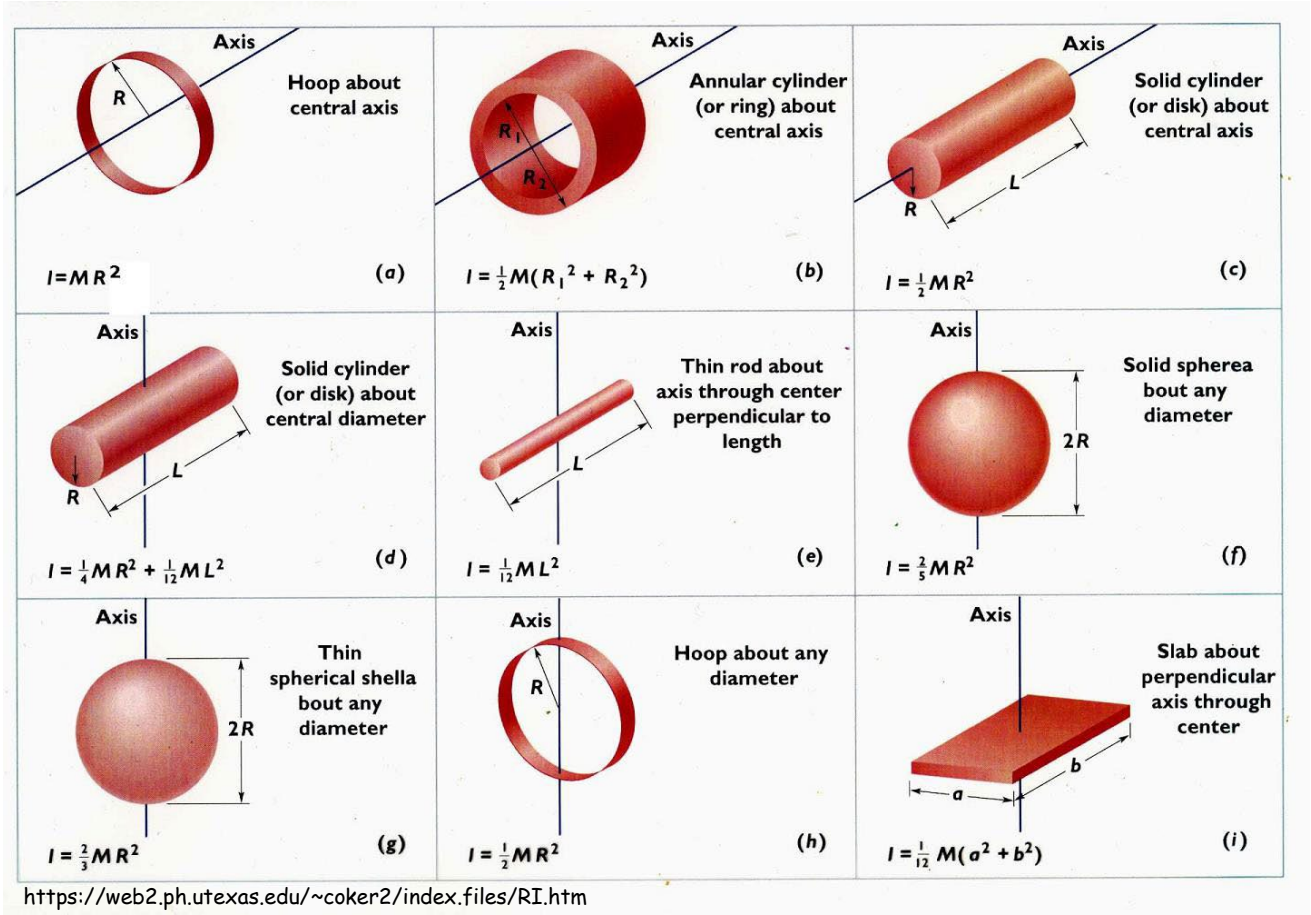
For a point mass: $I = mr^2$



For a solid body: $I = \int_M r^2 dm$



Some common moments of inertia are:



https://web2.ph.utexas.edu/~coker2/index.files/RI.htm

For an axis parallel to one for which the moment of interia is known, the moment of inertia about the parallel axis at a distance r is given by the Parallel Axis Theorem:

$$I_{\text{Parallel Axis}} = I_{\text{Known}} + mr^2$$