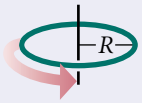
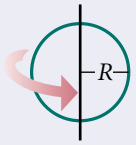
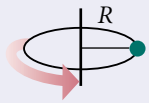
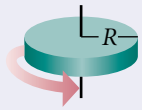
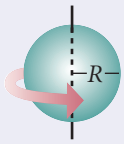
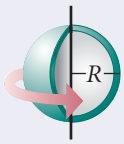
The Moment of Inertia for a Few Shapes

Shape	Moment of inertia
 thin hoop about symmetry axis	MR^2
 thin hoop about diameter	$\frac{1}{2}MR^2$
 point mass about axis	MR^2
 disk or cylinder about symmetry axis	$\frac{1}{2}MR^2$

Shape	Moment of inertia
 thin rod about perpendicular axis through center	$\frac{1}{12}M\ell^2$
 thin rod about perpendicular axis through end	$\frac{1}{3}M\ell^2$
 solid sphere about diameter	$\frac{2}{5}MR^2$
 thin spherical shell about diameter	$\frac{2}{3}MR^2$

Densities of Some Common Substances*

Substance	ρ (kg/m^3)
hydrogen	0.0899
helium	0.179
steam (100°C)	0.598
air	1.29
oxygen	1.43
carbon dioxide	1.98
ethanol	0.806×10^3
ice	0.917×10^3
fresh water (4°C)	1.00×10^3
sea water (15°C)	1.025×10^3
glycerine	1.26×10^3
aluminum	2.70×10^3
iron	7.86×10^3
copper	8.92×10^3
silver	10.5×10^3
lead	11.3×10^3
mercury	13.6×10^3
gold	19.3×10^3

*All densities are measured at 0°C and 1 atm unless otherwise noted.

Specific Heat Capacities

Substance	c_p (J/kg·°C)
aluminum	8.99×10^2
copper	3.87×10^2
glass	8.37×10^2
gold	1.29×10^2
ice	2.09×10^3
iron	4.48×10^2
lead	1.28×10^2
mercury	1.38×10^2
silver	2.34×10^2
steam	2.01×10^3
water	4.186×10^3