Distance	**formulas**	**formulas**	Conversions	**Energy/Power**
1 mile = 5,280 ft 1 ft. = 12 inches	$\Delta S = V_0 t + 1/2 a t^2$ $V_f = V_0 + at$	$\Delta X = V_{ox} t$ $V_{fx} = V_{ox}$	1.0 ft= 0.305 m Weight = mg 1.0 lb.= 4.445 N 1 slug= 14.59 kg	Work = F•d Power = Work/t $KE = 1/2 mv^2$
550 ft•lbs/s = 1 hp 746 W = 1hp	$\Delta S = \frac{V_f^2 - V_0^2}{2a}$	$\Delta Y = V_{oy} t + \frac{1}{2} a_y t^2$	equivalency 1.0 lb. = 0.4536 kg 1.0 kg = 2.205 lb.	W-H = ΔKE+ΔPE H = f•ΔS PE = mgh
1m = 100cm 1m = 1000mm 1km=1000m	Circle C = 2πr Area = πr² F_{net} = mv²/r	$\Delta Y = \frac{V_{fy}^2 - V_{oy}^2}{2a_y}$	$V_{fy} = V_{oy} + a_y t$	
Pressure	Rotation	Rotation	momentum	momentum
$P = \frac{Force}{Area}$ $\rho = \frac{M}{Vol}$	$S = R\theta$ $V = R\omega$ $a = R\alpha$	$RE: \sum \tau_i = 0$ $RD: \sum \tau_i = I\alpha$	Conservation of Momentum $m_1 v_1 + m_2 v_2 =$ $m_1 V_1 + m_2 V_2$	Hybrid Conservation of Energy $v_1 + V_1 = v_2 + V_2$ $\varepsilon = \frac{V_2 - V_1}{v_1 - v_2}$
Vol =Ah P=ρgh $\rho_{water} = 1000 \frac{kg}{m^3}$	$\omega = \frac{\Delta\theta}{\Delta t}$ $\alpha = \frac{\Delta\omega}{\Delta t}$	1 rev = 2πradians Volume of sphere = 4/3πr³ $KE = \frac{1}{2} I\omega^2$	2-d (x-dir) cons of mo $m_1 v_{1x} + m_2 v_{2x} + ... =$ $m_1 V_{1x} + m_2 V_{2x} + ...$	2-d (y-dir) cons of mo $m_1 v_{1y} + m_2 v_{2y} + ... =$ $m_1 V_{1y} + m_2 V_{2y} + ...$
Pressure Units 1 Pa = 1N/m² Atmospheric Pressure=1.01 x10⁵ Pa	$\Delta\theta = \omega_o t + \frac{1}{2}\alpha t^2$ $\omega_f = \omega_o + \alpha t$ $\Delta\theta = \frac{\omega_f^2 - \omega_o^2}{2\alpha}$	$I_{rectngle} = m\frac{\ell^2 + w^2}{12}$ $I_{disc} = \frac{m_{disc}}{2} R_{disc}^2$ $I_{ring} = m_{ring} \frac{R_{out}^2 + R_{in}^2}{2}$	perfectly inelastic $m_1 v_1 + m_2 v_2 =$ $(m_1 + m_2) V$	$(m_1 + m_2 + ...) v =$ $m_1 V_1 + m_2 V_2 + ...$ reverse perfectly inel.
$specific\ gravity = \frac{\rho\ of\ substance}{\rho_{water}}$		$KE_{rotation} = \frac{1}{2} I\omega^2$ $I_{disc} = \frac{m_{disc}}{2} R_{disc}^2$	$\varepsilon = \frac{V_2 - V_1}{v_1 - v_2}$	$I_{rectngle} = m\frac{\ell^2 + w^2}{12}$ $I_{ring} = m_{ring} \frac{R_{out}^2 + R_{in}^2}{2}$