$\Delta x = v_0 t + \frac{1}{2}at^2$ | $v = v_0 + at$ | $v^2 = v_0^2 + 2a\Delta x$

$\sum \vec{F} = m\vec{a}$ | $F_{fric} \leq \mu F_N$ | $F_g = G\frac{m_1 m_2}{r^2}$

$F_g = mg$ | $\vec{p} = m\vec{v}$ | $\boldsymbol{a = \frac{v^2}{r}}$

$v_t = r\omega$ | $a_t = r\alpha$ | $\tau = RF\sin\theta = R_\perp F = RF_\perp$

$\sum \vec{\tau} = I\vec{\alpha}$ | $KE = \frac{1}{2}mv^2$ | $\Delta PE_g = mg\Delta y$

$W = Fd\cos\theta = F_\parallel d = Fd_\parallel$ | $PE_s = \frac{1}{2}kx^2$ | $P = \frac{W}{\Delta t}$

$\vec{F} = -k\vec{x}$ | $T = 2\pi\sqrt{\frac{m}{k}}$ | $T = 2\pi\sqrt{\frac{L}{g}}$

$\rho = \frac{m}{V}$ | $F_{buoy} = \rho g V$ | $P_1 + \frac{1}{2}\rho v_1^2 + \rho g y_1 = P_2 + \frac{1}{2}\rho v_2^2 + \rho g y_2$

$P = \frac{F}{A}$ | $PV = nRT = Nk_B T$ | $\Delta U = Q + W_{on\ system}$

$Q = mc\Delta T$ | $Q = \pm mL$ | $\Delta S = \frac{Q}{T}$

$v = f\lambda$ | $f_o = f_s\left(\frac{v_{snd} \pm v_{obs}}{v_{snd} \mp v_{src}}\right)$ | $n = \frac{c}{v}$

$n_1 \sin\theta_1 = n_2 \sin\theta_2$ | $m\lambda = d\sin\theta$ | $\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$

$m = -\frac{d_i}{d_o}$ | $F_e = k\frac{q_1 q_2}{r^2}$ | $\vec{E} = \frac{\vec{F}}{q}$

$V = \frac{kq}{r}$ | $V = \frac{W}{q}$ | $\Delta V = -Ed\cos\theta = -E_\parallel d = -Ed_\parallel$

$PE_e = \frac{kq_1 q_2}{r}$ | $Q = CV$ | $PE = \frac{1}{2}CV^2$

$V = RI$ | $P = IV$ | $F = qvB\sin\theta = qvB_\perp$

$B = \frac{\mu_0 I}{2\pi r}$ | $B = \mu_0 nI$ | $F = ILB\sin\theta = ILB_\perp$

$E = \gamma m_0 c^2 = mc^2$ | $E = hf$ | $p = \frac{h}{\lambda}$

$\varepsilon = vBL\left(\frac{BA}{t}\right)$ | $hf = KE_e + W_0$ | $Q = e\sigma T^4 At$

$p = \frac{mv}{\sqrt{1-\frac{v^2}{c^2}}}$ | $E = \frac{mc^2}{\sqrt{1-\frac{v^2}{c^2}}}$

Continued on back…

Moments of Inertia:

Solid disk or cylinder for a perpendicular axis through its center: $I = \frac{1}{2}MR^2$

Thin rod about the center, perpendicular to rod: $I = \frac{1}{12}MR^2$

Solid sphere about a diameter: $I = \frac{2}{5}MR^2$