Formulas
(you need very few of these!!)

$x = x_0 + v_0 t + \frac{1}{2} a_x t^2$	$D = \frac{1}{2} C \rho A v^2$	$W = \int_{\vec{x}_i}^{\vec{x}_f} \vec{F}(x) \cdot d\vec{x}$	$W = \vec{F} \cdot \vec{x}$
$\vec{A} \cdot \vec{B} = \lvert A \rvert B \rvert \cos\theta$	$\vec{a} \times \vec{b} = \lvert a \rvert b \rvert \sin\phi \perp$ to both		$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
$\sin\theta = \frac{o}{h}$	$\cos\theta = \frac{a}{h}$	$\tan\theta = \frac{o}{a}$	
$\vec{r} = \vec{r}_0 + \vec{v}_0 t + \frac{1}{2} \vec{a}\, t^2$	$\vec{v} = \vec{v}_0 + \vec{a}t$	$\vec{v}^{\,2} = \vec{v}_0^{\,2} + 2\vec{a}(\vec{r} - \vec{r}_0)$	
$y = (\tan\theta)x - \frac{g x^2}{2(v_0 \cos\theta_0)^2}$		$a_r = \frac{v_t^2}{r}$	
$\sum \vec{F} = m\vec{a}$	$f_s = \mu_s N, f_k = \mu_k N$		$F_s = -kx$
$U_g = mgh$	$W_s = -\frac{1}{2} k x^2$	$KE = \frac{1}{2} m v^2$	$P = \frac{dW}{dt}$
$\sin 30° = 0.5 = \cos 60°, \cos 30° = 0.866 = \sin 60°$			$\sin 45° = 0.707 = \cos 45°$
use $g = 10 \frac{m}{\sec^2}$,	$\tan 45° = 1$		
$C = 2\pi r$	$A = \pi r^2$	$V = \frac{4}{3} \pi r^3$	$A_{sphere} = 4\pi r^2$	$A_{cylinder} = 2\pi r h$
$v = \frac{dx}{dt}$	$a = \frac{dv}{dt}$	$T = \frac{2\pi}{\omega}$	
$s = \theta R$	$v_t = \omega R$	$a_t = \alpha R$	
$\theta = \theta_0 + \omega_0 t + \frac{1}{2} \alpha\, t^2$	$\omega = \omega_0 + \alpha t$		

$\vec{p} = m\vec{v}$	$v_{1f} = \frac{m_1 - m_2}{m_1 + m_2} v_{1i}$	$v_{2f} = \frac{2m_1}{m_1 + m_2} v_{1i}$	$\vec{F} = \frac{d\vec{p}}{dt}$
$I = \sum m_i R_i^2$	$I_{hoop} = MR^2$	$I_{disk} = \frac{1}{2} MR^2$	$I_{sphere} = \frac{2}{5} MR^2$
$I_{rod} = \frac{1}{12} ML^2$	$I_{general} = \beta MR^2$	$I = I_{cm} + Md^2$	
$x_{cm} = \frac{\sum_i m_i x_i}{\sum_i m_i}$	$\vec{\tau} = \vec{r} \times \vec{F} = rF \sin\phi$	$\sum \vec{\tau} = I\vec{\alpha}$	$KE = \frac{1}{2} I\omega^2$
$L = I\omega$	$\tau = \frac{dL}{dt}$	$\vec{F} = \frac{GMm}{r^2} \hat{r}$	$U = -\frac{GMm}{r}$	$G = 6.67 \times 10^{-11}$
$P_1 = P_0 + \rho g(y_0 - y_1)$	$P_0 + \frac{1}{2}\rho v^2 + \rho gh = const.$	$Av = const.$	
$x = x_m \sin(\omega_0 t + \phi)$	$v_x = \omega_0 x_m \cos(\omega_0 t + \phi)$	$a_x = -\omega_0^2 x_m \sin(\omega_0 t + \phi)$	$\omega = \sqrt{\frac{k}{m}}$
$\omega = \sqrt{\frac{g}{L}}$	$y = y_m \sin(kx - \omega t)$	$v = \frac{\omega}{k} = \frac{\lambda}{T}$	$k = \frac{2\pi}{\lambda}$
$v = \sqrt{\frac{\tau}{\mu}}$	$s = s_m \cos(kx - \omega t)$	$v = \sqrt{\frac{B}{\rho}}$	$f_b = \lvert f_1 - f_2 \rvert$
$\beta = (10\,dB)\log\frac{I}{I_0}$	$I = \frac{P_s}{4\pi r^2}$	$f_{obs} = f_s \frac{v \pm v_D}{v \mp v_s}$	$v_s = 330 m/\sec$