Possibly useful relations:

$\vec{A} = A_x\hat{i} + A_y\hat{j} + A_z\hat{k}$	$A = \lvert\vec{A}\rvert = \sqrt{A_x^2 + A_y^2 + A_z^2}$	rotate the right hand fingers
$\vec{A}\cdot\vec{B} = AB\cos(\theta)$	$\vec{A}\times\vec{B} = \vec{C}$, $C = AB\lvert\sin(\theta)\rvert$	from $\vec{A}$ to $\vec{B}$ to get $\vec{C}$
$\cos\theta$ = adjacent/hypotenuse	$\tan\theta = \sin\theta/\cos\theta$	$v = \omega r$
$\sin\theta$ = opposite/hypotenuse	$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a}$	$a = \alpha r$
$\vec{v}_{\text{avg}} = \Delta\vec{r}/\Delta t$	$\vec{v}(t) = \frac{d\vec{r}}{dt}$	$\omega(t) = \frac{d\theta}{dt}$
$\vec{a}_{\text{avg}} = \Delta\vec{v}/\Delta t$	$\vec{a}(t) = \frac{d\vec{v}}{dt}$	$\alpha(t) = \frac{d\omega}{dt}$
$\vec{v_f} = \vec{v_i} + \vec{a}t$	$v_{\text{avg}} = \frac{v_i+v_f}{2}$	$\omega_{\text{avg}} = \frac{\omega_i+\omega_f}{2}$
$x_f = x_i + v_it + \frac{1}{2}at^2$	$\vec{r_f} = \vec{r_i} + \vec{v_i}t + \frac{1}{2}\vec{a}t^2$	$\theta_f = \vec{\theta_i} + \vec{\omega_i}t + \frac{1}{2}\vec{\alpha}t^2$
$x_f = x_i + v_{\text{avg}}t$	$v_f^2 = v_i^2 + 2a\Delta x$	$\omega_f^2 = \omega_i^2 + 2\alpha\Delta\theta$
$\vec{v}_{AB} = \vec{v}_{AC} + \vec{v}_{CB}$		
$\Sigma\vec{F} = m\vec{a}$	$\vec{F}_{AB} = -\vec{F}_{BA}$	$\Sigma\vec{\tau} = I\vec{\alpha}$
$\vec{F_g} = \vec{W} = m\vec{g}$	$\vec{F}_{12} = G\frac{m_1m_2}{r_{12}^2}\hat{r}_{12} = -\vec{F}_{21}$	$\vec{\tau} = \vec{r}\times\vec{F}$
$f_s \le \mu_s N$, $f_K = \mu_K N$	$F_D = \frac{1}{2}C\rho Av^2$	$\tau = rF\lvert\sin\theta\rvert = r_\perp F = rF_\perp$
$a_c = \frac{v^2}{r} = \omega^2 r$	$v = \frac{2\pi}{T}r = \omega r$	$I = I_{CM} + md^2$
Static equilibrium:	$\Sigma_i\vec{F_i} = 0$	$\Sigma_i\vec{\tau_i} = 0$
$dW = \vec{F}\cdot d\vec{r} = \lvert\vec{F}\rvert\lvert d\vec{r}\rvert\cos\theta$	$W_{AB} = \int_A^B \vec{F}\cdot d\vec{r}$	$W_{AB} = \int_{\theta_A}^{\theta_B}\vec{\tau}d\theta$
$E = K + K_{rot} + U$	$K = m\frac{v^2}{2}$, $\Delta K = W_{net}$	$K_{rot} = I\frac{\omega^2}{2}$
$U_g = mgy$, $U(r) = -G\frac{mM}{r}$	$U_s(x) = k\frac{(x-x_0)^2}{2}$	I_{CM} will be provided
$\Delta E = W_{non\ cons}$	$P = \frac{dW}{dt}$, $P = \vec{F}\cdot\vec{v}$	$P = \tau\omega$
$\vec{P} = \Sigma_i m_i\vec{v}_i$	$\Delta\vec{P} = \vec{J} = \int_{t_1}^{t_2}\vec{F}_{ext}dt$	$\vec{L} = \Sigma_i(\vec{r_i}\times(m_i\vec{v_i}))$, $L = I\omega$
	$\frac{d\vec{P}}{dt} = \vec{F}_{ext}$,	$\frac{d\vec{L}}{dt} = \vec{\tau}_{ext}$,
Is energy conserved?	yes $\rightarrow$ elastic interaction	no $\rightarrow$ inelastic interaction
$G = 6.67\times10^{-11}\frac{N\ m^2}{kg^2}$	use g=10 m/s^2 instead of 9.8 m/s^2	