Physics Honors Equations Sheet - Lundy

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Useful equations:

$V_f = V_i + at$	$V_{\text{av}} = \frac{\triangle x}{t}$	$V_{\text{av}} = \frac{V_i + V_f}{2}$
$a = \frac{V_f - V_i}{t}$	$\triangle x = \frac{1}{2}at^2 + V_i t$	$V_f^2 = V_i^2 + 2a\triangle x$
$V_{ix} = \cos\theta \cdot V_i$	$V_{iy} = \sin\theta \cdot V_i$	
$\triangle x_x = V_x \cdot t$	$\triangle x_y = \frac{1}{2}a_y t^2 + V_{iy} t$	$\triangle x = -\frac{\sin(2\theta) \cdot V_i^2}{a}$
$\lvert F_{sf}\rvert = \mu_s \cdot \lvert F_n\rvert$	$\lvert F_{kf}\rvert = \mu_k \cdot \lvert F_n\rvert$	
$F = ma$	$F_t = mg + ma$	
$\text{GPE} = mgh$	$\text{EPE} = \frac{1}{2}kx^2$	$\text{KE} = \frac{1}{2}mV^2$
$W = Fd\cos\theta$	$W = \text{KE}_f - \text{KE}_0$	
$P = \frac{W}{t}$	$P = \frac{\triangle E}{t}$	$P = F \cdot V_{\text{av}}$
$p = m \cdot v$	$m_{i_1} V_{i_1} + m_{i_2} V_{i_2} = (m_1 + m_2) V_f$	$J = \triangle p = m \cdot \triangle V = F \cdot t$
$\omega_{\text{av}} = \frac{\theta}{t}$	$\alpha = \frac{\omega_f - \omega_i}{t}$	
$\theta = \frac{1}{2}\alpha t^2 + \omega_i t$	$\omega_f^2 = \omega_i^2 + 2\alpha\theta$	$\omega_{\text{av}} = \frac{\omega_i + \omega_f}{2}$
$s = \theta \cdot r$	$V = \omega \cdot r$	$a = \alpha \cdot r$
$T = F \cdot l$	$T_{\text{net}} = I \cdot \alpha$	$\text{KE}_{\text{rotational}} = \frac{1}{2} \cdot I \cdot \omega^2$
$L = I \cdot \omega$	$F_c = \frac{mV^2}{r} = m \cdot \omega^2 \cdot r$	$a_c = \frac{V^2}{r} = \omega^2 \cdot r$
$F_{\text{grav}} = \frac{G \cdot m_1 \cdot m_2}{d^2}$	$G = 6.67 \times 10^{-11} \frac{Nm^2}{kg^2}$	$V = \frac{2\pi r}{t}$
$V^2 = \frac{G \cdot m}{r}$	$G \cdot m = \frac{4\pi^2 r^3}{t^2}$	$t^2 \propto r^3$

Stuck? Try:

- Listing variables
- Considering which variables are 0
- Drawing a picture
- Looking for an equation that matches the variables