Physics 40 Exam 2 FALL 2014

Print Name: ______________________________________

Circle Lab Section: 1 2 3 4

Show work for ANY credit. Box answers. Assume 3 significant figures! Ignore air resistance.

NEATNESS COUNTS.

Equations

\[ \sum \mathbf{F} = m \mathbf{a}, \quad f_k = \mu_k N, \quad \mathbf{p} = m \mathbf{v}, \quad \sum \mathbf{F}_{\text{ext}} = m \mathbf{a} = \frac{d\mathbf{p}}{dt}, \]

\[ \mathbf{I}_{\text{ext}} \text{(Impulse)} = \Delta \mathbf{p} = \int_{t_i}^{t_f} \mathbf{F} dt, \quad \Delta \mathbf{p} = \mathbf{F}_{\text{net}} \Delta t \]

\[ s = r \theta, \quad v_i = \omega R = \frac{2\pi R}{T}, \quad a_i = \alpha R, \quad a_c = \frac{v^2}{R} = \omega^2 R \]

\[ a = \frac{dv}{dt} = \frac{d^2 x}{dt^2}, \quad \Delta v = \int a dt, \quad \Delta x = \int v dt \]

\[ x = v t, \quad v = \frac{dx}{dt}, \quad \bar{v} = \frac{v_i + v_f}{2} = \frac{\Delta x}{\Delta t} \]

\[ a = \frac{dv}{dt}, \quad v_f = v_i + at \]

\[ x_f = x_i + v_i t + \frac{1}{2} at^2 \]

\[ v_{f}^2 = v_{i}^2 + 2a \Delta x \]

\[ \alpha = \frac{d\omega}{dt} = \frac{d^2 \theta}{dt^2}, \quad \Delta \omega = \int \alpha dt, \quad \Delta \theta = \int \omega dt \]

\[ \theta = \bar{\omega} t, \quad \omega = \frac{d\theta}{dt}, \quad \bar{\omega} = \frac{\omega_i + \omega_f}{2} = \frac{\Delta \theta}{\Delta t} \]

\[ \alpha = \frac{d\omega}{dt}, \quad \omega_f = \omega_i + \alpha t \]

\[ \theta_f = \theta_i + \omega_i t + \frac{1}{2} \alpha t^2 \]

\[ \omega_{f}^2 = \omega_{i}^2 + 2\alpha \Delta \theta \]