

Key Equations

$$\tau = rF \quad \tau = rF\sin\theta \quad \tau = I\alpha$$

$$\omega = \frac{\Delta\theta}{\Delta t} \quad \alpha = \frac{\Delta\omega}{\Delta t}$$

$$\Delta x = \Delta\theta r \quad v = \omega r \quad a = \Delta\alpha r$$

$$\omega = \omega_0 + \alpha t \quad \Delta\theta = \omega_0 t + \frac{1}{2}\alpha t^2 \quad \omega^2 = \omega_0^2 + 2\alpha\Delta\theta$$

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

$$I_{\text{point mass}} = mr^2 \quad \tau_{\text{ccw}} = \tau_{\text{cw}}$$

$$KE_{\text{rot}} = \frac{1}{2}I\omega^2 \quad KE_{\text{translational}} = \frac{1}{2}mv^2 \quad PE_{\text{grav}} = mgh$$

$$PE_o + KE_o = PE_F + KE_F$$

$$L = I\omega \quad L_o = L_F \quad I_o\omega_o = I_F\omega_F$$

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