

# Falling weight & pulley...

- Using 1-D kinematics we can solve for the time required for the weight to fall a distance  $L$ :

$$y = y_0 + v_0 t + \frac{1}{2} a t^2$$

$$L = \frac{1}{2} a t^2 \quad \rightarrow \quad t = \sqrt{\frac{2L}{a}}$$

$$\text{where } a = \left( \frac{mR^2}{mR^2 + I} \right) g$$

