

HW12-3

$$\frac{6 \text{ rev}}{\text{s}} \times \frac{2\pi \text{ rad}}{\text{rev}} = 37.7 \frac{\text{rad}}{\text{s}}$$

spin up $\omega = \omega_0 + \alpha t$

$$37.7 = 0 + \alpha (5)$$

↑ spin up time

$$\alpha = 7.54$$

$$\theta = \theta_0 + \omega_0 t + \frac{1}{2} \alpha t^2$$

$$\theta = 0 + 0 + \frac{1}{2} (7.54) (5)^2$$

$$\theta = 94.25 \text{ radians}$$

spin down $\omega = \omega_0 + \alpha t$

$$0 = \cancel{\omega_0} 37.7 + \alpha (7)$$

$$\alpha = -5.386$$

$$\theta = \theta_0 + \omega_0 t + \frac{1}{2} \alpha t^2$$

$$\theta = 94.25 + 37.7 (7) + \frac{1}{2} (-5.386) (7)^2$$

$$\theta = 94.25 + 263.9 - 131.96$$

$$\theta = 226.2 \text{ radians} \times \frac{\text{rev}}{2\pi \text{ rad}} = \underline{\underline{36 \text{ revolutions}}}$$