

PROB. 15-8

$$\omega_0 = (6900 \frac{\text{REV}}{\text{MIN}}) \left(\frac{\text{MIN}}{60 \text{ S}} \right) \left(\frac{2\pi}{\text{REV}} \right) = 722.5 \frac{\text{RAD}}{\text{S}}$$

$$t = (4 \text{ MIN}) \left(\frac{60 \text{ S}}{\text{MIN}} \right) = 240 \text{ S}, \quad \omega_f = 0$$

UNIFORMLY ACCELERATED MOTION, FIND α , θ

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

$$\alpha = \frac{\omega - \omega_0}{t} = \frac{0 - 722.5 \frac{\text{RAD}}{\text{S}}}{240 \text{ S}} = -3.011 \frac{\text{RAD}}{\text{S}^2}$$

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

$$\theta = 0 + (722.5 \frac{\text{RAD}}{\text{S}})(240 \text{ S}) + \frac{1}{2}(-3.011 \frac{\text{RAD}}{\text{S}^2})(240 \text{ S})^2 \left(\frac{\text{REV}}{2\pi} \right)$$

$$\theta = 13,797 \text{ REV}$$