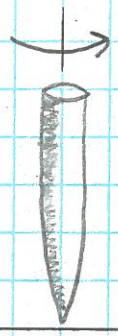

$\omega_0 = 0$ at $t_0 = 0$

$\omega_1 = 2000 \text{ rpm}$ at $t_1 = .5 \text{ s}$

$= 2000 \frac{\text{rev}}{\text{min}} \left(\frac{1 \text{ min}}{60 \text{ s}} \right) \left(\frac{2\pi \text{ rad}}{1 \text{ rev}} \right)$

$= 209.4 \text{ rad/s}$

$\alpha = \text{const.}$

a.) $\omega_1 = \omega_0 + \alpha \Delta t \qquad \Delta t = t_1 - t_0$

$\alpha = \frac{\omega_1}{t_1} = \underline{418.9 \text{ rad/s}^2}$

b.) for $\theta_0 = 0$:

$\theta_1 = \theta_0 + \omega_0 \Delta t + \frac{1}{2} \alpha \Delta t^2$

$= \frac{1}{2} \alpha t_1^2$

$= 52.36 \text{ rad} \left(\frac{1 \text{ rev}}{2\pi \text{ rad}} \right)$

$= \underline{8.33 \text{ rev}}$