HW 9-12 Soln)

For a round symmetric shape we might assume that $I = \gamma MR^2$.

$$\omega_{\rm f} = 600 \frac{\rm rev}{\rm min} \times \frac{1 \, \rm min}{60 \, \rm sec} \times \frac{2\pi \, \rm rad}{\rm rev} = 62.8 \, \rm rad/sec$$

$$\alpha = \frac{\omega_{\rm f} - \omega_{\rm i}}{\rm t} = \frac{62.8 - 0}{3} = 20.93 \, \rm rad/s^2$$

$$I = \frac{\tau}{\alpha} = \frac{11.73}{20.93} = 0.56$$

$$\gamma = \frac{I}{MR^2} = \frac{0.56}{7(0.4^2)} = 0.5003$$

We might suppose that the object is disk-shaped.