

52. **REASONING AND SOLUTION** Angular momentum is conserved, $I\omega = I_0\omega_0$, so

$$\omega = \left(\frac{I_0}{I} \right) \omega_0 = \left(\frac{5.40 \text{ kg} \cdot \text{m}^2}{3.80 \text{ kg} \cdot \text{m}^2} \right) (5.00 \text{ rad/s}) = \boxed{7.11 \text{ rad/s}}$$