Exercise 9-27

(a) $\omega_1 = 0.640 \frac{rev}{s} \times \frac{2\pi\ rad}{1\ rev} = 4.02\ rad/s \quad \left(4.02, \frac{rad}{s}\right)$

(b) Angular momentum is conserved.

$$\therefore I_2 \omega_2 = I_1 \omega_1$$

Given: $I_2 = \frac{2}{3} I_1$

$$\therefore \frac{2}{3} I_1 \omega_2 = I_1 \omega_1$$

$$\therefore \omega_2 = \frac{3}{2} \omega_1 = 6.03\ rad/s$$