

60. The initial angular speed is  $\omega = (280)(2\pi/60) = 29.3$  rad/s. We use Eq. 11-44 for the work and Eq. 7-42 for the average power.

(a) Since the rotational inertia is (Table 11-2(a))  $I = (32)(1.2)^2 = 46.1$  kg·m<sup>2</sup>, the work done is

$$W = \Delta K = 0 - \frac{1}{2}I\omega^2 = -\frac{1}{2}(46.1)(29.3)^2$$

which yields  $|W| = 19.8 \times 10^3$  J.

(b) The average power (in absolute value) is therefore

$$|P| = \frac{|W|}{\Delta t} = \frac{19.8 \times 10^3}{15} = 1.32 \times 10^3 \text{ W} .$$