

22. (a) We obtain

$$\omega = \frac{(200 \text{ rev/min})(2\pi \text{ rad/rev})}{60 \text{ s/min}} = 20.9 \text{ rad/s} .$$

(b) With $r = 1.20/2 = 0.60 \text{ m}$, Eq. 11-18 leads to

$$v = r\omega = (0.60)(20.9) = 12.6 \text{ m/s} .$$

(c) With $t = 1 \text{ min}$, $\omega = 1000 \text{ rev/min}$ and $\omega_o = 200 \text{ rev/min}$, Eq. 11-12 gives

$$\alpha = \frac{\omega - \omega_o}{t} = 800 \text{ rev/min}^2 .$$

(d) With the same values used in part (c), Eq. 11-15 becomes

$$\theta = \frac{1}{2} (\omega_o + \omega) t = \frac{1}{2} (200 + 1000) (1) = 600 \text{ rev} .$$