

FIP 2 p355 13 19 25 26 29 34 36

13. $3 \times 2\pi = 6\pi$ or about 18.8 radians

19. $1.8 \times 2\pi = 3.6\pi$

$$\omega = \frac{\theta}{t}$$

$$\omega = \frac{3.6\pi}{9}$$

$$\omega \approx 1.3 \text{ radians/s}$$

25. $\frac{1 \text{ revolution}}{50 \text{ seconds}} \times \frac{2\pi \text{ radians}}{1 \text{ revolution}} \approx 0.1 \text{ radian/s}$

26. $\frac{500 \text{ revolutions}}{1 \text{ minute}} \times \frac{1 \text{ minute}}{60 \text{ seconds}} \times \frac{2\pi \text{ radians}}{1 \text{ revolution}} \approx 52.4$
radians/s

29. $v = r\omega$

$$v = 4(27.4)$$

$$v = 109.6 \text{ ft/s}$$

34a. $\frac{120^\circ}{1 \text{ second}} \times \frac{60 \text{ seconds}}{1 \text{ minute}} \times \frac{1 \text{ revolution}}{360^\circ} = 20 \text{ rpm}$

$$34b. 120^\circ = 120^\circ \times \frac{\pi}{180^\circ}$$

$$= \frac{2\pi}{3}$$

$$\omega = \frac{\theta}{t}$$

$$\frac{2\pi}{3}$$

$$\omega = \frac{1}{1}$$

$$\omega = \frac{2\pi}{3}$$

$$v = r\omega$$

$$v = 5\left(\frac{2\pi}{3}\right)$$

$$v \approx 10.5 \text{ in./s}$$

$$36a. r = \frac{1}{2}d$$

$$r = \frac{1}{2}(80) \text{ or } 40$$

$$v = r\frac{\theta}{t}$$

$$v = 40\left(\frac{2\pi}{45}\right)$$

$$v \approx 5.6 \text{ ft/s}$$

$$36b. v = r\frac{\theta}{t}$$

$$8 = 40\left(\frac{2\pi}{t}\right)$$

$$t \approx 31 \text{ s}$$