8.3 Velocity

NAME:_____

Corrective Assignment

DATE:_____

Perform each conversion.	
1. 40 rev/min = _____ rad/sec	2. 80 rev/hr = _____ rev/min
3. 55 mi/hr = _____ ft/sec	4. 8 rad/min = _____ rev/min
5. 240 rev/hr = _____ rad/min	6. 50 ft/sec = _____ mi/hr

$$w = \frac{\theta}{t} \qquad v = rw$$

7. Mr. Kelly loves riding Ferris wheels and eating cotton candy. While riding a Ferris wheel he notices that he is 25 ft from the center of the wheel and times one complete revolution at 20 seconds.

   a. What is Mr. Kelly's angular velocity in radians per minute?

   b. What is Mr. Kelly's linear velocity in feet per second?

8. The Earth has a radius of about 4000 miles. Given that we make one rotation per day. Find the following.

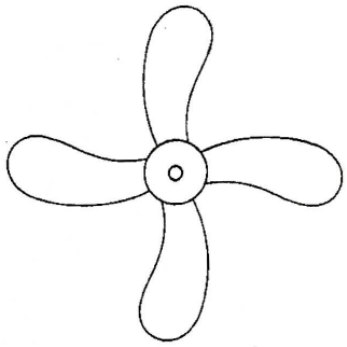
   a. What is the angular velocity of a human?

   b. What is the linear velocity of a human in mph?

9. The propeller on an average freighter has a radius of 4 ft. At full speed ahead, the propellers turn 150 rpm.

   a. What is the angular velocity in radians per minute at the tip of the blades?

   b. What is the linear velocity in feet per minute at the tip of the blades?



   c. What is the linear velocity in miles per hour at the tip of the blades?

10. A child on a merry go round has a linear velocity of 14 feet per minute. If the child is sitting 8 feet from the center of the merry go round, what is the child's angular velocity in radians per second?

11. A child on a merry go round has a linear velocity of 6 mph. If the child is sitting 10 feet from the center of the merry go round, what is the child's angular velocity in radians per second?

ANSWERS TO 8.3 CORRECTIVE ASSIGNMENT

1. $\frac{4\pi}{3}$	2. $\frac{4}{3}$	3. $\frac{242}{3}$	4. $\frac{4}{\pi}$	5. 8π	6. $\frac{375}{11}$
7. a. 6π rad/min b. $\frac{5\pi}{2}$ ft/sec	8. a. 2π rad/day b. $\frac{1000\pi}{3}$ mph	9. a. 300π rad/min b. 1200π ft/min c. $\frac{150\pi}{11}$ mi/hour	10. $\frac{7}{240}$ rad/sec	11. 0.88 rad/sec	