

## More Linear/Angular Velocity Applications

- (1) You are riding on a ferris wheel that has a diameter of 60 feet. If it turns at .25 rps, how fast are you moving in mph?

- (2) The diameter of each wheel of a bicycle is 26 inches. If you are traveling at 35 mph on this bicycle, how fast are the wheels turning in rps?

$$v = \frac{35 \text{ mi}}{1 \text{ hr}}$$

$$r = 13 \text{ in.}$$

$$v = r \cdot \omega$$

- (3) Planet "Q" has a diameter of 3500 miles. How fast is the planet spinning on its axis, in mph, if its day is 10 hours?

(4) If the Earth revolves around the sun at 66700 mph. How far are we from the sun?

*use*  
 $\theta = \frac{s}{r}$

(5) An object is traveling around a circle with a radius of 2 meters. If in 20 seconds the object travels 5 meters, what is its angular speed? What is its linear speed?

(6) Two children are playing on a seesaw. The lighter child is 9 feet from the fulcrum, and the heavier child is 6 feet from the fulcrum. As the lighter child goes from the ground to the highest point, she travels through an angle of  $35^\circ$  in .5 seconds. Find the angular and linear velocity of each child.

- ①  $v \approx 32.13 \text{ mph}$   
 ②  $\omega \approx 7.54 \text{ rps}$   
 ③  $v \approx 1099.56 \text{ mph}$   
 ④  $r \approx 92,992,960.01 \text{ miles}$   
 ⑤ a)  $\omega = .125 \text{ rad/sec}$   
     b)  $v = .25 \text{ m/sec}$

⑥ a)  $\omega = \frac{7\pi}{18} \text{ rad/sec.}$

⑥

Lighter child	Heavier child
$v \approx 11 \text{ ft/sec}$	$v \approx 7.33 \text{ ft/sec.}$

HW  
 Pg. 355 #12  
 Pg. 357 #42