

Angular and Linear Velocity Worksheet

1.



Aaron rotates a stone in 3 ft long sling at the rate of 15 revolutions every 10 seconds.
Find the Angle Velocity in radian per seconds.
(Round to the nearest tenth)

2.

Aaron rotates a stone in 3 ft long sling at the rate of 15 revolutions every 10 seconds.
Find the Linear Velocity in ft per seconds.
(Round to the nearest tenth)

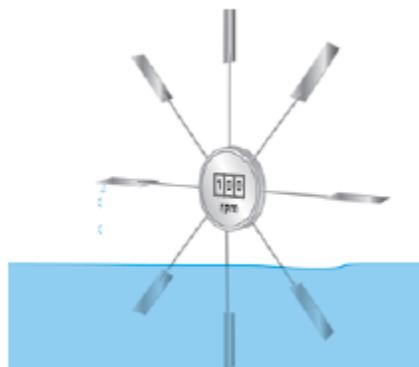
3.

A Roshelle is riding a bicycle whose wheels are 26 inches in diameter.
If the wheels of rotates at 750° in one sec.
find the speed (Linear Velocity) at which she is taveling, in mi/hr.
Round to the tenth



4.

Speed of a Current To measure the speed of a current, scientists place a paddle wheel in the stream and observe the rate at which it rotates. If the paddle wheel has radius 0.20 m and rotates at 100 rpm, find the speed of the current in m/s.



Round to the tenth

5.

A winch of radius 2 ft is used to lift heavy loads. If the winch makes 2880° every 15 seconds, find the speed at which the load is rising.
(Linear Velocity in ft/s)
Round to the tenth.

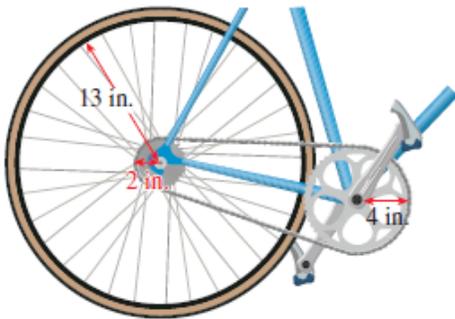


6. The earth rotates about its axis once every 23.9 hr and the radius of the earth is 3960 mi. Find the linear speed of a point on the equator in mi/hr. Round to the unit



7. The sprockets and chain of a bicycle are shown below. The pedal sprocket has a radius of 4 in. and the wheel a radius of 13 in. The cyclist pedals at 40 rpm. Note: Both sprockets have the same Angular Velocity.

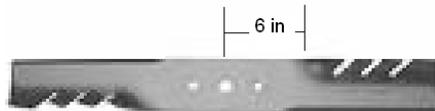
Find the Linear Velocity in mile per hr. Round to the tenth



8. *Ship's Propeller Problem* The propellers on an average freighter have a radius of 4 ft. At full speed ahead, the propellers turn at 150-rpm. What is the linear velocity in feet per minute at the tip of the blades? Round to the feet per minute.



9. *Lawn Mower Blade Problem* In order for a lawn mower blade to cut grass, it must strike the grass with a speed of at least **900 in/s**. If the innermost part of the cutting edge is 6 in. from the center of the blade, how many radians per second must the blade turn? (Hint: Angular Velocity is given as well as the radius find Linear Velocity)



10. Now that you know the Angular Velocity, If at the blade farthest end would hit a rock. What would be the speed of the rock? (in miles per hr) round to the nearest mile per hr

