

**Linear Motion Worksheet (p. 1)****Honors Freshman Physics**

Physics problems must be solved completely using the scientific approach K-U-E-S .

1. **Knowns** – write the known values (include units) and its variable symbol.
  2. **Unknowns** – write the variable symbol for what you will be solving for
  3. **Equation** – write the equation you will be using (symbols only!!)
  4. **Substitute & Solve** - Substitute the known values (numbers & units) for the letters in the equation.
  5. The **answer** should be circled/boxed and contain correct significant digits & units and no fractions.
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**SPEED**

1. Light from the sun reaches the earth in 498 s. If the sun is  $1.494 \times 10^{11}$  m from the earth, how fast (m/s) does light travel in space?  
 *$3.00 \times 10^8$  m/s*
2. A bullet is fired at 660 m/s and strikes a target 200.0 meters away. What is the duration of the bullet's flight?  
*0.30 s*
3. What is the average speed (km/h and mi/h) of a runner who completes a 5.00 km race in 20.50 min?  
*14.6 km/h    9.05 mi/h*
4. How far would an object move in 20.0 seconds if it were traveling at a constant speed of 63.00 meters per second?  
*1260 m*
5. An amusement park carousel travels at a speed of 8.0 m/s. If the circular track of the carousel has a radius of 10.3 m, how many seconds will it take for the carousel to make one complete revolution?  
*8.1 s*

**VELOCITY**

6. What is the velocity of a car traveling north on I-75 if it takes 2 hours to reach Chattanooga (120 miles)?  
*60 mi/h N*
7. The controls on a motorboat are marked at the position where it travels at 25.0 km/h in still water. What will be the velocity of the boat, as measured by an observer on shore, if it is directed upstream on a river which flows at the rate of 4.0 km/h?  
*21.0 km/h*