

Speed, Velocity, and Acceleration Worksheet

First /Last Name _____

1. What does the speed of a moving object tell you? What does the velocity of a moving object tell you? **Speed only tells how fast (say 20 mph) an object is moving. Velocity is speed plus direction so it tells you how fast the object moves AND the direction it is moving; for example, 20 mph, East is a velocity.**
2. What are the three ways an object can accelerate? **speed up, slow down, or turn (change direction)** What are the three parts of your car that can make it accelerate? **gas pedal (speed up), brakes (slow down), steering wheel (change direction/turn).**
3. Is it the velocity of an object that causes its acceleration to change or is it the acceleration of the object that causes its velocity to change? **Acceleration is what causes the velocity to change**
4. What do you know about an object's velocity if the object is not accelerating? **The velocity is constant since there is no acceleration to change it.**
5. Determine if the following objects have **constant velocity** or are **accelerating**.
 - (a) A car heading north at 35 mph **constant velocity**
 - (b) A car rounding a curve at 50 mph **accelerating**
 - (c) The Earth orbiting the Sun **accelerating**
 - (d) A car on cruise control moving straight **constant velocity**

- (e) A car on cruise control doing donuts **accelerating**
6. Can an object move with constant speed **and** accelerate? If so, give an example. If not, explain why not. **Yes. A car rounding a corner at constant speed changes direction so its speed is constant but its velocity (direction) changes**
7. Can an object move with constant velocity but not constant speed? If so, give an example. If not, explain why not. **No. This is not possible since constant velocity means both the speed and direction remain the same**
8. Can an object move with constant velocity **and** accelerate? If so, give an example. If not, explain why not. **No. This is not possible since acceleration means a change in velocity, either in speed or direction.**