Velocity & Acceleration

1. Velocity tells you how quickly _____ changes and is the slope of a _____ vs time graph.

2. Acceleration tells you how quickly _____ changes and is the slope of a _____ vs time graph.

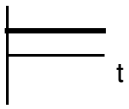
3. From the list of units below, circle all that are velocity and underline all that are acceleration.

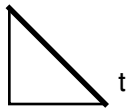
   m m/s kg/m cm/s km/h/s m/s^2 mph s/m m/s/s m^2/s s kg

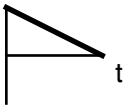
   kg/s $kg \cdot m/s^2$ s^2/m mile/min km/yr kph mph/s

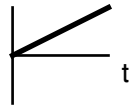
4. Which of the following graphs could show something that has a constant velocity?

   a. 

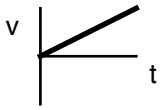
   b. 

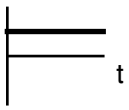
   c. 

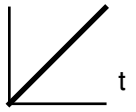
   d. 

   e. 

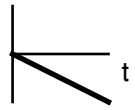
5. Which of the following graphs could show something that has a constant acceleration?

   a. 

   b. 

   c. 

   d. 

   e. 

6. There are three terms that often get confused: *constant speed*, *constant velocity* and *constant acceleration*. Explsin what each means so that one of your confused friends could understand.

7. What is your speed for each of the following situations?
   a. You travel 100 miles in 2 hours.

   b. You move 3 meters every second for 5 seconds.

   c. You stand still 10 meters away from your friend for 20 seconds.

   d. Starting 5 meters away from a friend, you end up 20 meters away from them after 3 seconds.

8. What is your acceleration for each of the following situations?
   a. You are speeding up at a constant rate of 3 m/s/s.

   b. You have a constant speed of 30 mph for 5 seconds.

   c. You slow down 15 mph in 3 seconds.

   d. You speed up from 5 m/s to 25 m/s in 8 seconds.

   e. You have a constant velocity of 12 m/s for 4 seconds.

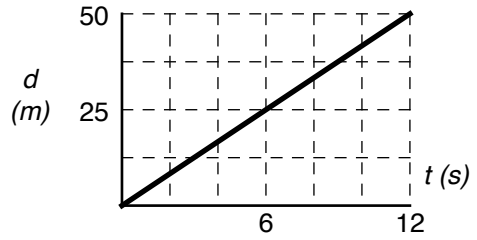
   f. You speed up 8 m/s every second for 2 seconds.

Velocity & Acceleration

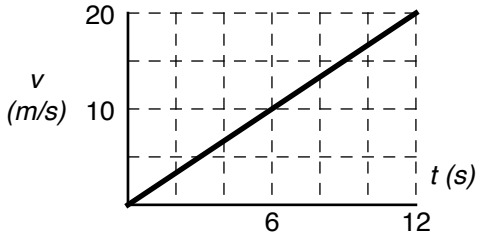
For each of the graphs shown below, do the following:

- calculate the slope of the line
- write the equation (using correct variables and units) that matches the line
- describe the motion using words
- make the other graph (velocity or position) that goes with the motion.

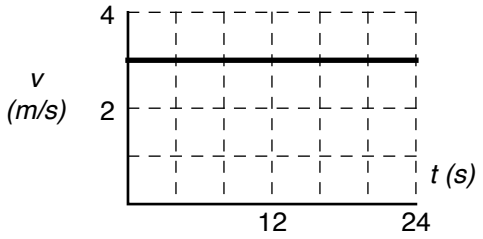
9.



10.



11.



12.