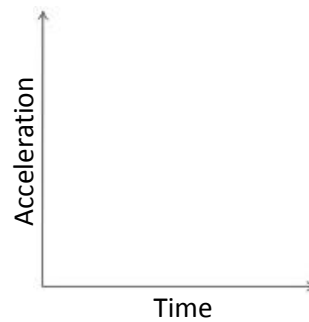
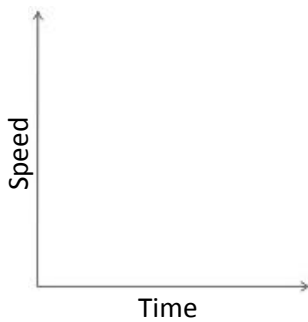
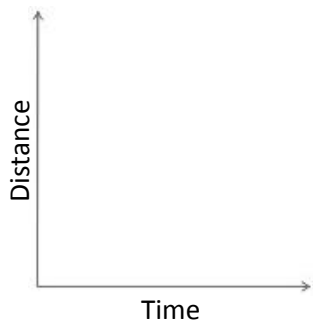


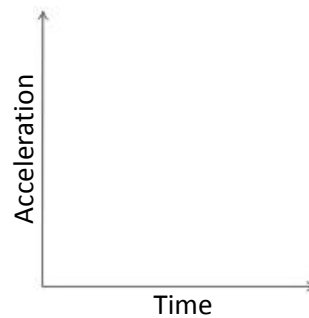
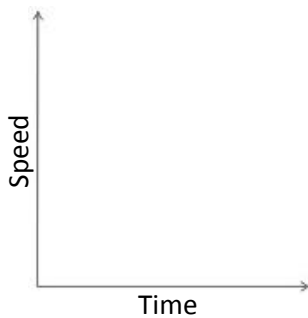
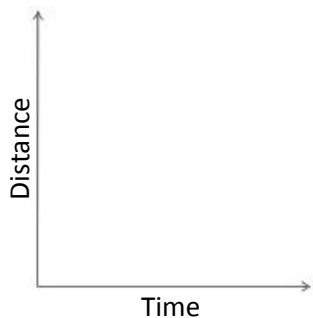
Velocity and Acceleration (Assignment 2)

Make quick sketches that represent each situation.

1. A train is travelling at a constant rate of speed.



2. A car accelerates from a green light at a constant rate.



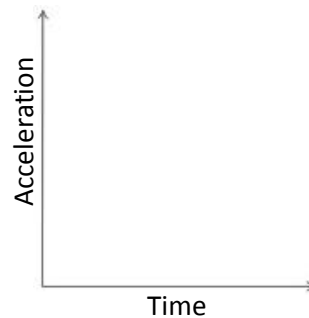
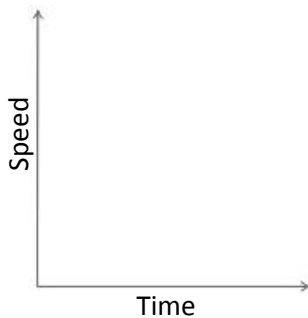
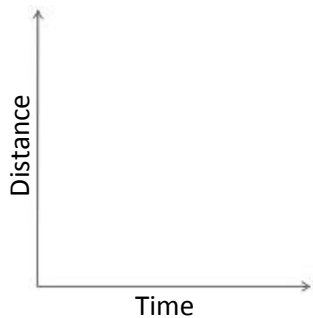
3. a) Before going for a run, Alex decides to warmup by walking for 10 minutes. If she walks at rate of 250 feet per minute, how far will Alex have walked before she starts running?

b) After walking Alex slowly increase her speed to 700 feet per minute over the course of 2 minutes. What was her average acceleration over this time?

c) After accelerating to 700 feet per minute, she maintains this speed for two miles. How many minutes did it take Alex to run two miles? (1 mile = 5,280 feet)

d) What was Alex's acceleration throughout the two miles she ran? How do you know?

e) Draw functions on each graph that represent Alex's trip from start to finish. You do not need to label the axes with numbers.



4. One possible unit for velocity is meters per second. List three others.

5. List three possible units for acceleration.

6. Beginning from a stop, you accelerate at a constant rate of 8 meters/second². How fast are you going after 12 seconds?

7. On a ramp onto 101 you are driving at a speed of 13 meters/second. Once you get on the highway you accelerate at a constant rate of 2.8 meters/second² over the course of 6 seconds. How fast are you driving on 101?

8. a) Without screeching your tires, your car can decelerate at a rate of 4.9 meters/second². If you are driving at 34 m/s, how long will it take you to come to a stop?

b) If it takes you 3.5 seconds to come to a stop (still decelerating at a rate of 4.9 meters/second²), how fast were you going before you began to brake?

9. A plane goes from 10 miles per hour to 160 miles per hour on the runway before takeoff. If it accomplishes this in 20 seconds, what is its average acceleration in miles/hour²? (60 seconds = 1 minute, 60 minutes = 1 hour)

10. a) You toss a ball straight up into the air at a speed of 80 feet/second. Due to gravity, the ball decelerates at a rate of -32 feet/second². How fast is the ball rising 1 second after you threw it?

b) How long will it take before the ball comes to a stop and begins to fall back down?