Turn in Essay 1 and Essay 2, Problem 1 (B,C). Rest will be done in class.

Essay 1, 10 points

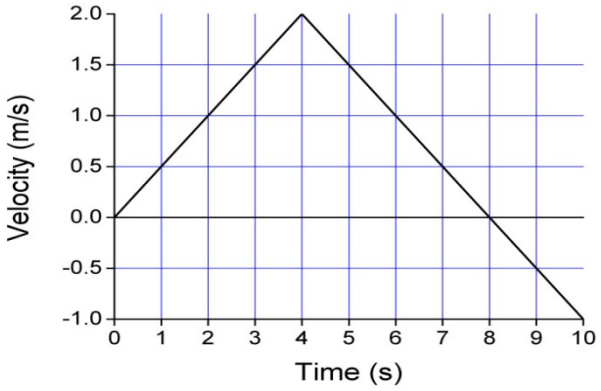
What is the difference between velocity and acceleration? (How would you calculate each quantity?) Can an object have a nonzero velocity, but have zero acceleration? Give an example from class, and give an example from life outside of class. Can an object have zero velocity, but nonzero acceleration? Give an example from class, and give an example from life outside of class.

Essay 2, 10 points

On a position vs. time graph, what does a horizontal line mean? What does a straight line at an angle to the horizontal mean? What does a curved line mean? What can you tell from the line being curved upward or curved downward?

Problem # 1. (B, C only) 10 points

A. For the graph shown below, sketch a corresponding position time graph assuming that the object starts at d= 1 m. This does not need to be exact, but should capture the essential shape. Describe the motion in words.
B. What is the acceleration between t= 0 and t= 4 seconds? Between t=4 and t=10 seconds?
C. Calculate the distance travelled from t=0 s to t=4 s and from t=4s to t=8s.
D. Write the equation for distance vs. time and velocity vs. time from t=0 to t=4 seconds.



Problem 3

Two cars start at the same place. One moves at a constant speed of 20 m/s. The other starts standing still, but accelerates with a constant acceleration of 3 m/s/s. Write an equation for the velocity as a function of time for each car. When do they have the same velocity? Write an equation for the position as a function of time for each car. How far has each car gone after 10 seconds?