Your Name _____ Instructor Name _____

Section day/time _____

Lab #2: Position, Velocity, and Acceleration
Pre-Lab
(Due at the beginning of the lab period)

The purpose of this pre-lab is to familiarize you with the interpretation of graphs showing position, velocity, or acceleration versus time. In all the exercises below, an object is moving in one dimension. Assume positive values are to the right and negative values are to the left.

1. The graph shown in Figure 1 below shows the **velocity** of an object as a function of time. The velocity ranges between -1 and +1 m/s. Divide it into the following regions:

   Region A: t between 0 and 4 s
   Region B: t between 4 and 8 s
   Region C: t between 8 and 11 s
   Region D: t between 11 and 14 s
   Region E: t between 14 and 16 s
   Region F: t between 16 and 19 s
   Region G: t between 19 and 20 s

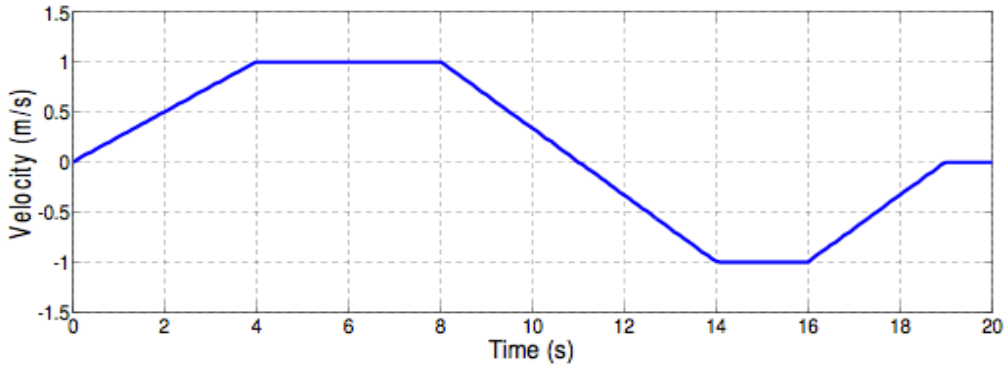
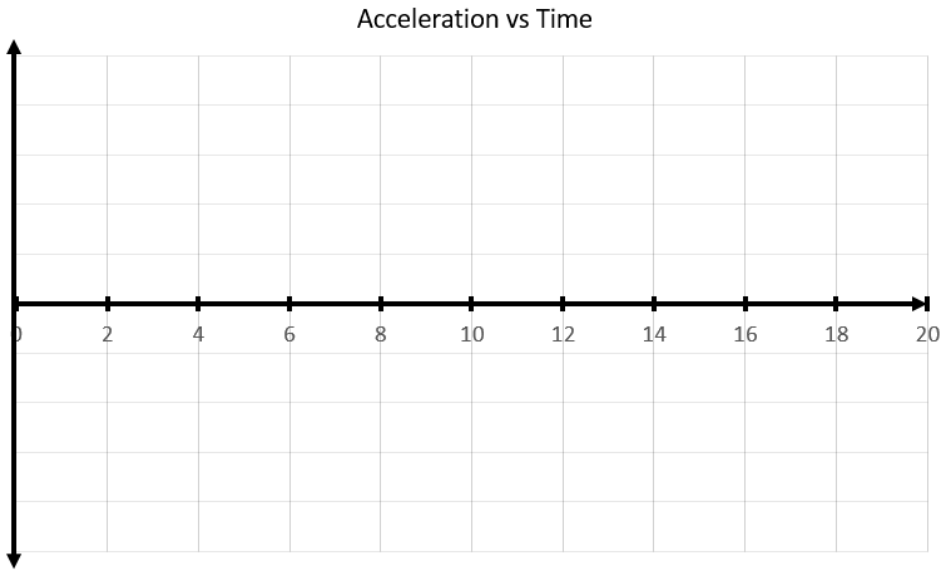


Figure 1: Velocity of an object as a function of time.

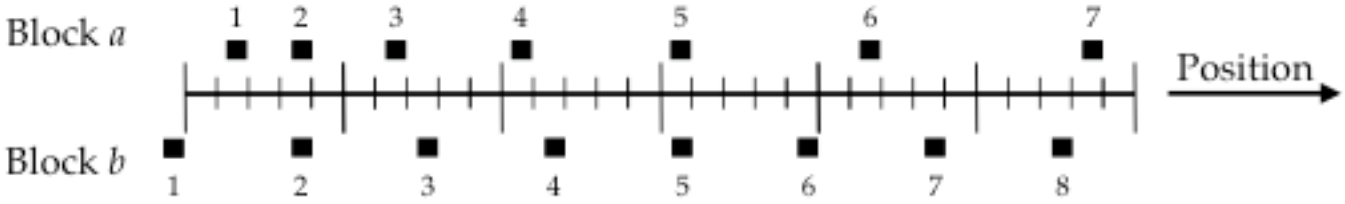
a. Complete the table below for each region A through G. Describe in words the motion of the person for each region A through G, e.g. moving to the right, moving to the left, stationary, turning, slowing down, speeding up, etc. What are the signs of the velocity and acceleration vectors in each region?

Region	**Describe the motion of the person**	**Sign of velocity (+, -, or 0)**	**Sign of acceleration (+, -, or 0)**
A			
B			
C			
D			
E			
F			
G			

b. Plot the object's acceleration as a function of time. Include a scale on the vertical axis.



2. The positions of two blocks at successive 0.2-second time intervals are represented by the numbered squares in the figure below. The blocks are moving from left to right.



Do the blocks ever have the same velocity?

a) No.
b) Yes, at instant 2.
c) Yes, at instant 5.
d) Yes, at some time during the interval 3 to 4.
e) Not enough information is given to answer the question.

Explain why you chose this answer.