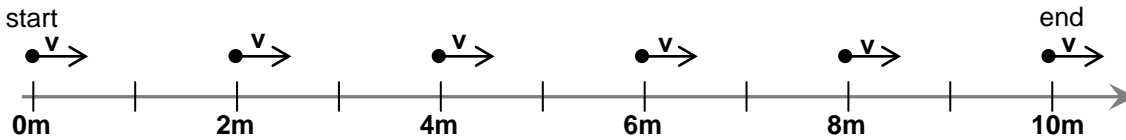


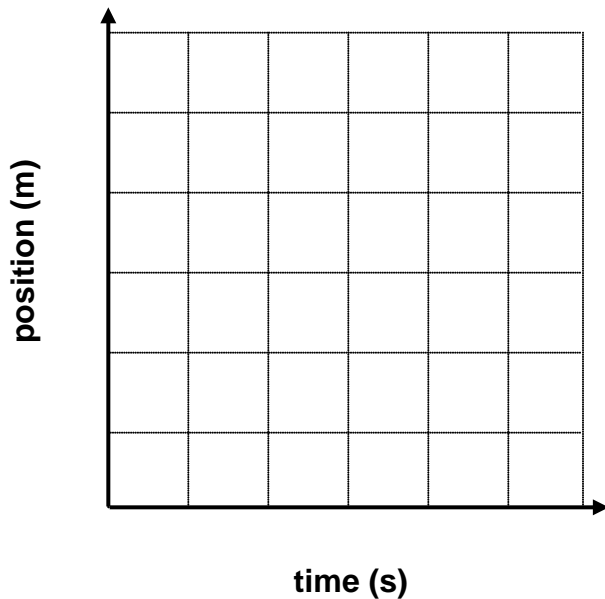
Constant Velocity Model Worksheet 4: Velocity vs. Time Graphs and Displacement

1. This motion map shows the position of an object once every second. From the motion map, answer the following:

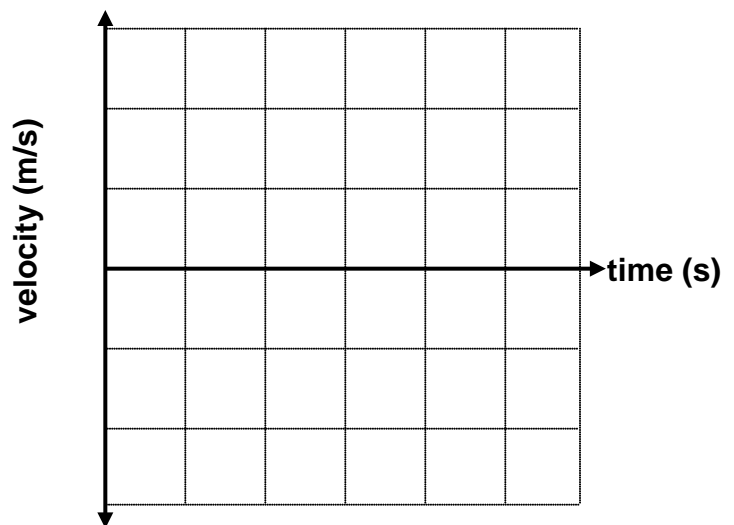


- a. Describe the motion of the object.

- b. Represent the motion with a quantitative x vs. t graph.



- c. Represent the motion with a quantitative v vs. t graph.



- d. Write a mathematical expression that represents the relationship between position and time.

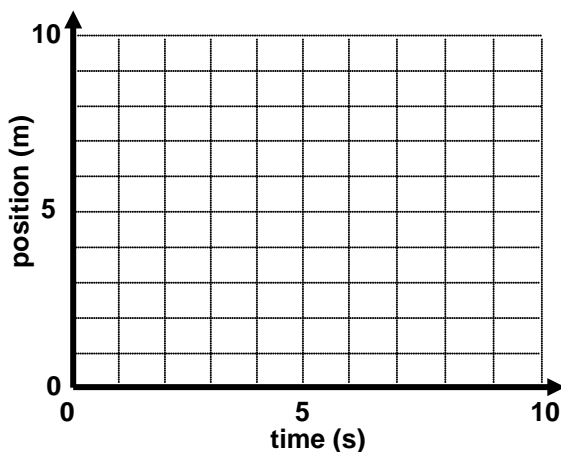
- e. From the position-time graph find the displacement from $t = 1$ s to $t = 3$ s.

- f. Find the area under the velocity-time graph from $t = 1$ s to $t = 3$ s. What are the units of this area? Describe what this area represents.

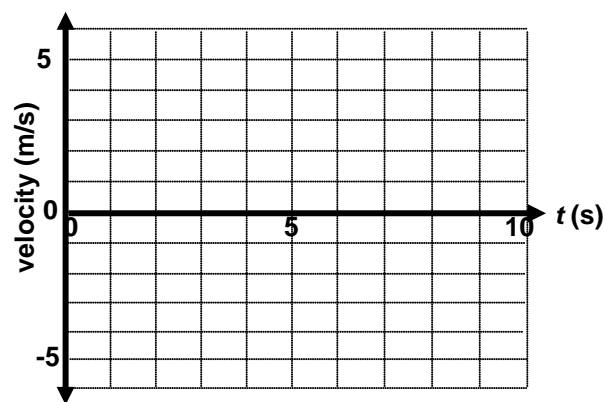
2. From the position vs. time data below, answer the following questions.

a. Construct a graph of position vs. time.

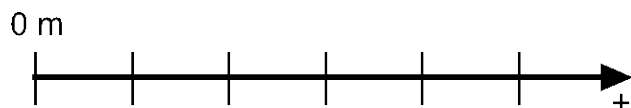
t (s)	x (m)
0	0
1	2
2	4
3	4
4	7
5	10
6	10
7	10
8	5
9	0



b. Construct a graph of velocity vs. time.



c. Draw a motion map for the object.



d. Determine the displacement from $t = 3.0$ s to 5.0 s using the velocity vs. time graph.

e. Determine the displacement from $t = 7.0$ s to 9.0 s using the velocity vs. time graph.

f. Determine the average **velocity** from $t = 4$ s to 8 s.

g. Determine the average **speed** from $t = 4$ s to 8 s.