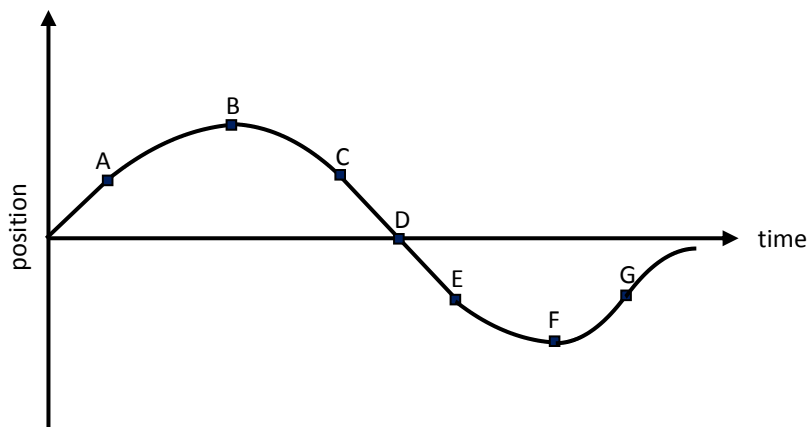
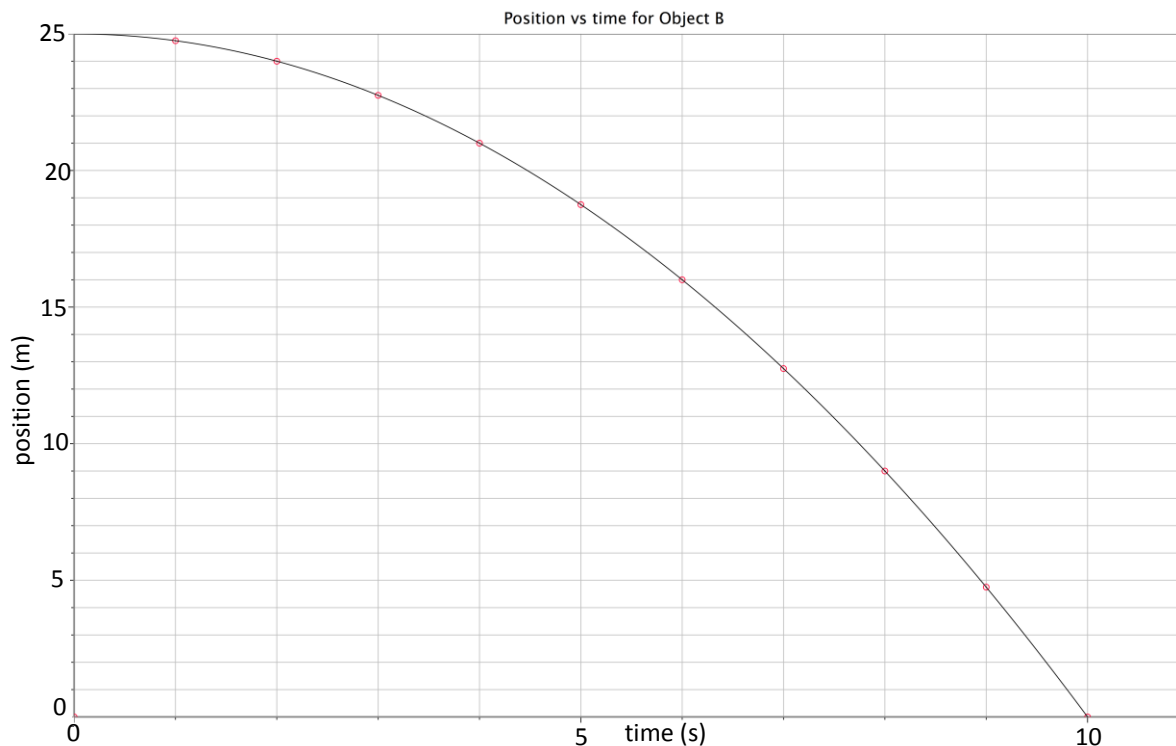


## Uniformly Accelerated Particle Model Worksheet 4: Interpreting Graphs of Accelerated Motion

Object A:

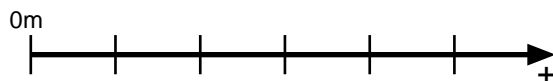


- Where on the graph above is the object moving most slowly? How do you know?
- Between which points is the object speeding up? How do you know?
- Between which points is the object slowing down? How do you know?
- Where on the graph above is the object changing direction? How do you know?



- a. Give a written description of the motion.
- b. Represent object B's motion with a motion map. Include both velocity and acceleration vectors.

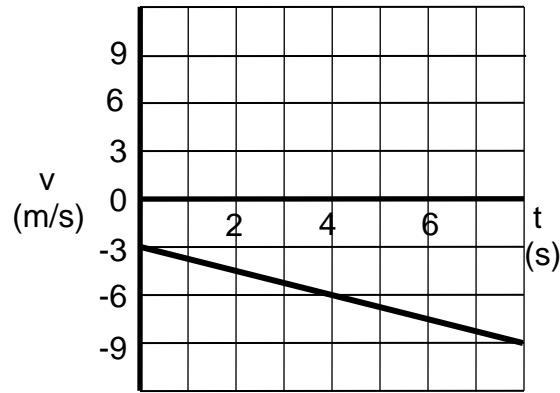
**vel:**



**acc:**

- c. Find the **displacement** from  $t = 2.0$  s to  $t = 8.0$ s.
- d. Find the **average velocity** from  $t = 2.0$  s to  $t = 8.0$ s.
- e. Find the **instantaneous velocity** at  $t = 2.0$  s and  $t = 8.0$ s by finding slopes of tangents.
- f. Determine the **average acceleration** from  $t = 2.0$  s to  $t = 8.0$ s.
- g. What is the **instantaneous velocity** at  $t = 5.0$  s? Explain.

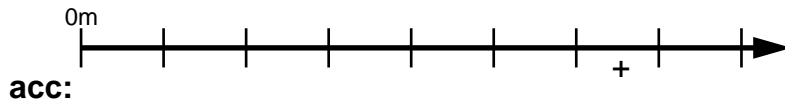
**Object C:**



a. Give a written description of the motion.

b. Sketch a motion map. Be sure to include both velocity and acceleration vectors.

**vel:**



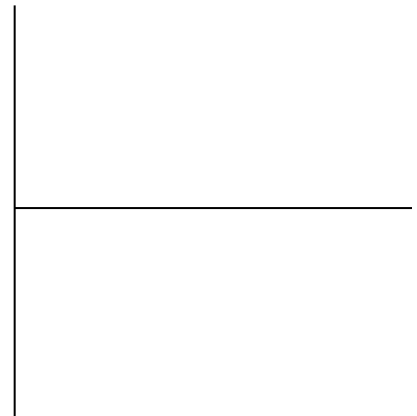
**acc:**

c. Determine the displacement from  $t = 0$ s to  $t = 4$  s.

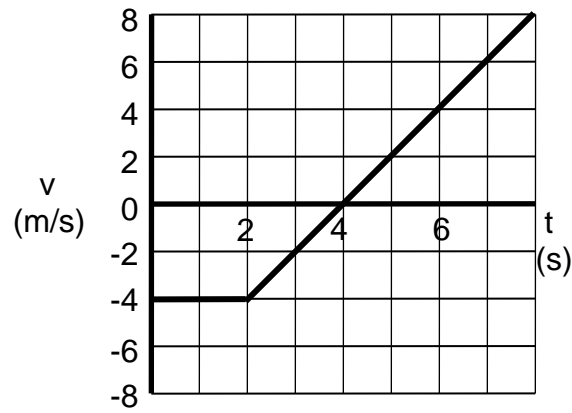
d. Determine the displacement from  $t = 4$  s to  $t = 8$  s.

e. Determine the average acceleration of the object's motion.

f. Sketch a possible  $x$ - $t$  graph for the motion of the object.  
Explain why your graph is only one of many possible graphs.



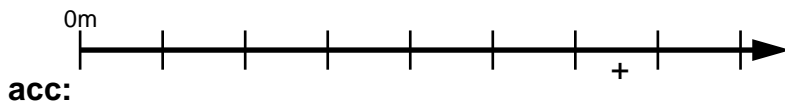
**Object D:**



a. Give a written description of the motion.

b. Sketch a motion map. Be sure to include both velocity and acceleration vectors.

**vel:**



c. Determine the displacement from  $t = 0$  s to  $t = 4$  s.

d. Determine the displacement from  $t = 4$  s to  $t = 8$  s.

e. Determine the displacement from  $t = 2$  s to  $t = 6$  s.

f. Determine the object's acceleration at  $t = 4$  s.

g. Sketch a possible  $x$ - $t$  graph for the motion of the object.  
Explain why your graph is only one of many possible graphs.

