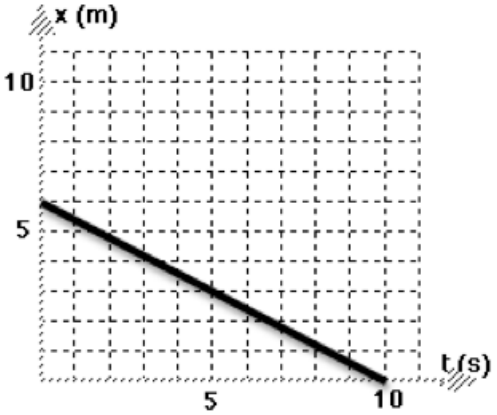
Name_____

UNIT II: Practice Test

1. Consider the position vs time graph at right.



   a. Determine the average velocity of the object.

   b. Write a mathematical equation to describe the motion of the object. Be sure to include the 5% rule.

   c . Using your mathematical model, determine the object's position after 8 seconds?

2. Johnny drives to Los Angeles from Los Gatos (350 miles) in 7 hours. He returns home by the same route but gets stuck in traffic, so it takes him 8 hours.

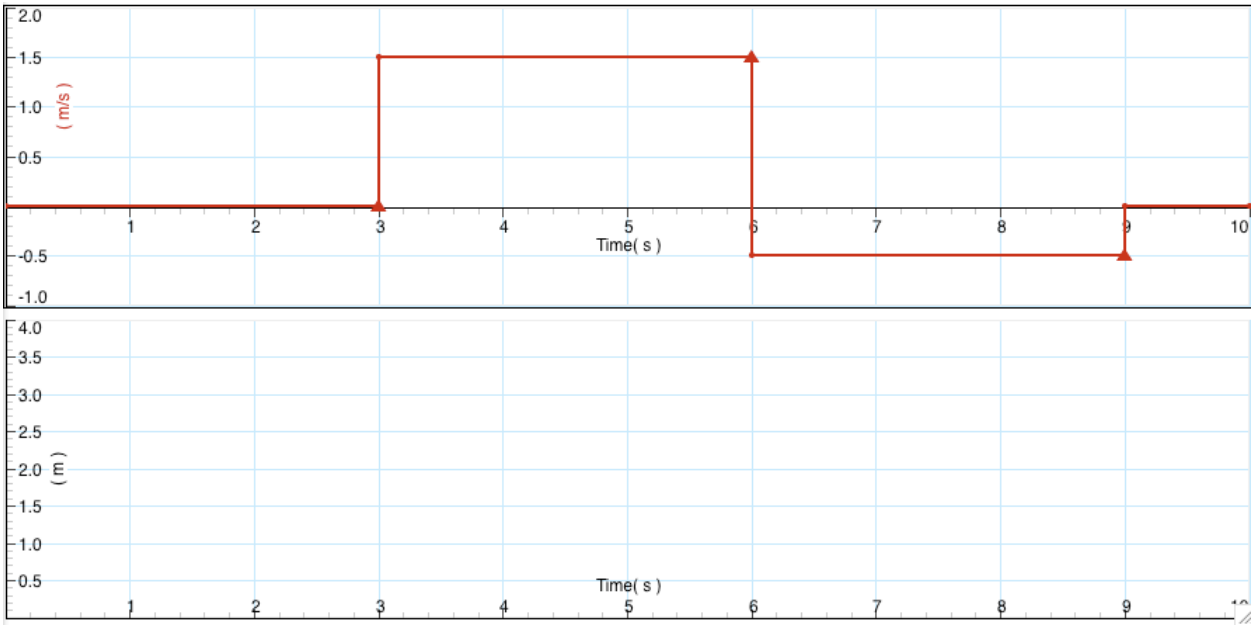
What distance does he travel?

What was his displacement?

What was his average speed?

What was his average velocity?

3. a. Construct a position-time graph for the motion described in the velocity-time graph shown below. Assume a position of zero at t = 0. **Be sure to number the scale on the position axis.**



b. Describe the motion of the object over each time interval:

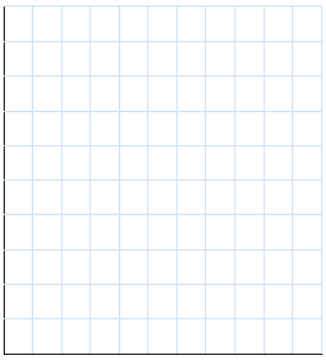
0-3 seconds

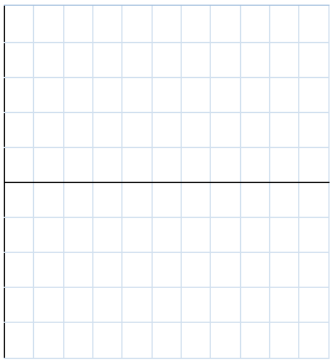
3-6 seconds

6-9 seconds

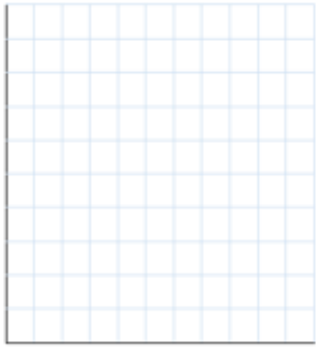
4. Produce qualitative position-time and velocity-time graphs for the following scenarios:

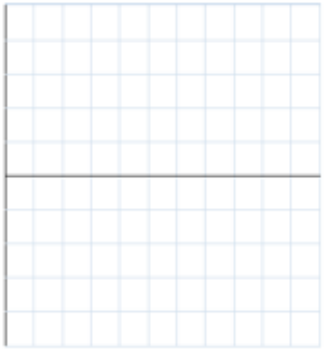
a. Object 1 starts at the zero-position, object 2 starts ahead. Both travel forward. Object 2 is faster than object 1.



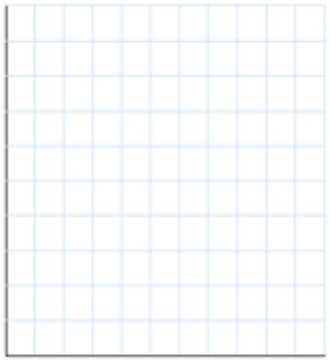


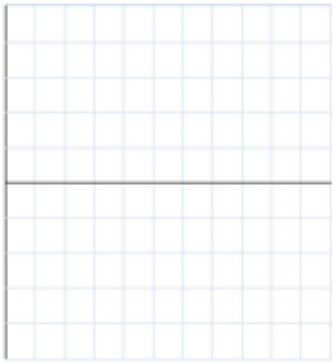
b. Object 1 and 2 both start at the same position and travel forward. Object 1 is faster than object 2.



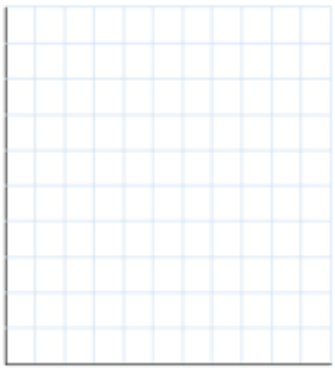


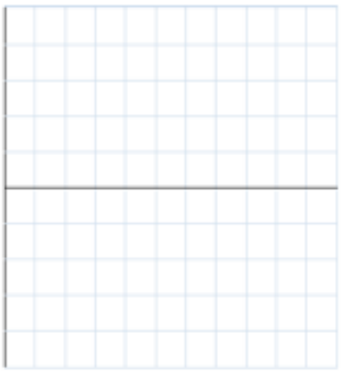
c. Object 1 travels forward, object 2 travels backward. They both have the same speed.





d. Object 1 is stopped, object 2 travels backward at a fast, constant speed.





5. Understanding equations:
What does each variable mean in this equation?

$$x_f = vt + x_i$$

Which equations can be used to find displacement?

How can you find displacement from a position-time graph? From a velocity-time graph?

Which equations can be used to find velocity?

How can you find velocity from a position-time graph?