

Name: _____ Date: _____ Period: _____

Unit Two Study Guide - Constant Motion

Topics Covered:

Displacement vs. Distance

Speed vs. Velocity

$$\text{Velocity} = \frac{\text{Displacement}}{\text{Time}}$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

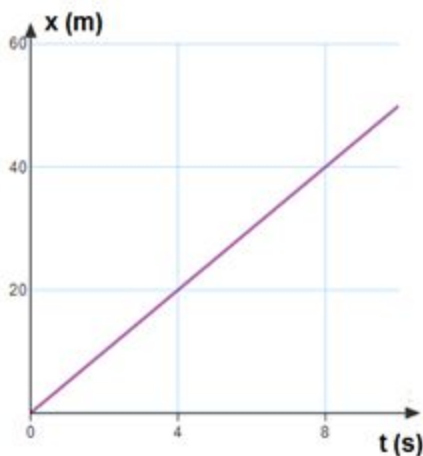
Reading Graphs

- Position vs. Time
 - Identify an object's initial position
 - Identify an object's instantaneous velocity
 - Identify an object's average velocity
 - Identify an object's displacement
 - Identify an object's position
 - Create the Velocity vs. Time graph from the Position vs. Time graph

Practice Questions:

1. What is the definition of displacement? What is the equation to solve for displacement ?

2. Is it possible to have a negative displacement? Why or Why not?



3. The Graph to the left shows a position vs. time graph of a car traveling on the highway at a constant velocity.

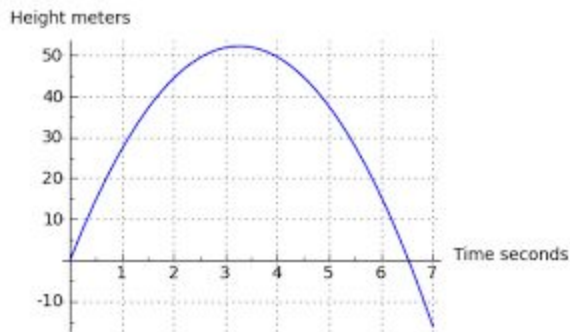
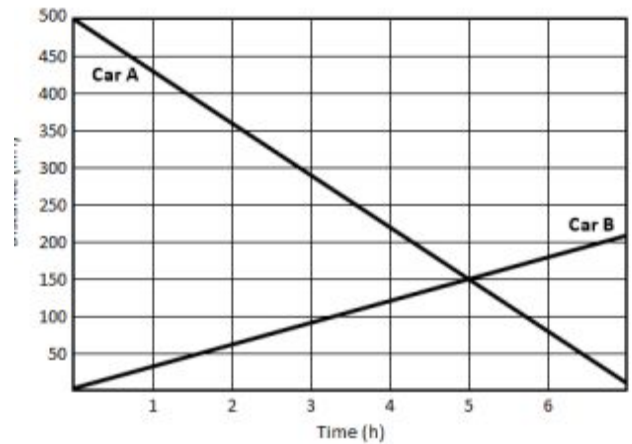
What is the car's initial position?

What is the car's displacement from 0-8 seconds?

What is the car's velocity from 0-8 seconds?

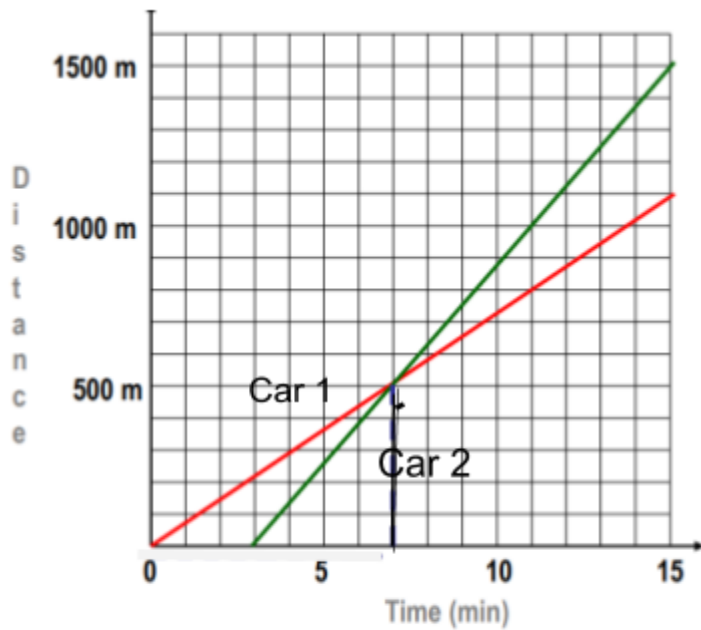
4. The graph to the right shows the position versus time for two cars traveling on a straight highway.

- At what time do they pass one another?
- What is the velocity of car A?
- What is the velocity of car B?
- How far away is car A from car B at 2 hours?



5. The graph to the left shows a position vs. time graph of a ball being thrown in the air.

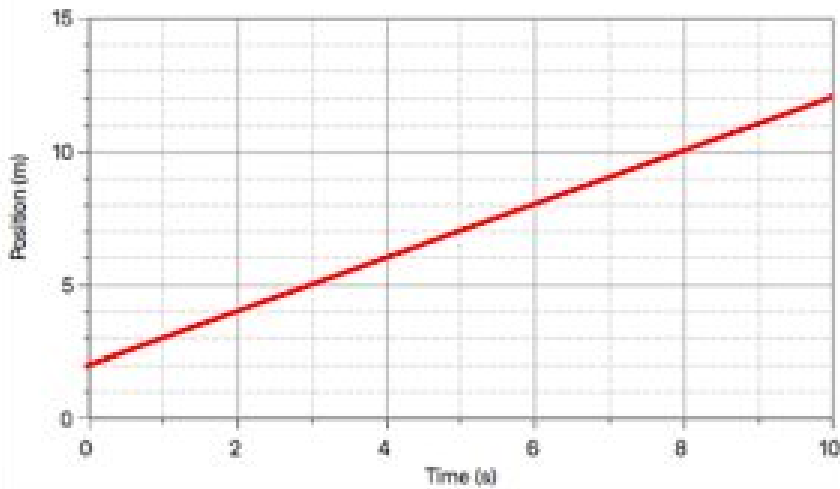
- At what time does the ball reach the the greatest displacement?
- At what time does the ball reach the same displacement as $t=2s$?
- What is the ball's displacement from 2-6 seconds?



6. The graph to the left shows the graph for two cars racing down the road.

a. At what time did Car 2 pass Car 1?

b. How long did car two wait before starting the race?



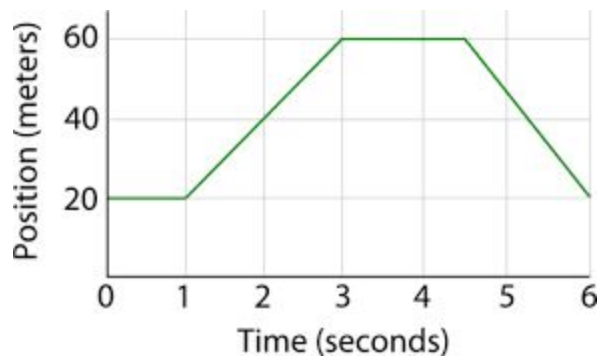
7. The graph on the right shows a position vs. time graph. Answer the following questions.

What is the object's initial position?

What is the object's average velocity from 0-10 seconds?

Assuming that the object stays at the same velocity, what would be the object's displacement at 15 seconds?

What would be the object's position after 15 seconds?



Time (sec)	Velocity (m/s)
0-1	
1-3	
3-4.5	
4.5-6	

Describe the motion of the object at each time interval.

What is the car's displacement from 0-5 seconds?

Create the Velocity vs. Time graph for the Position vs. Time graph shown above.