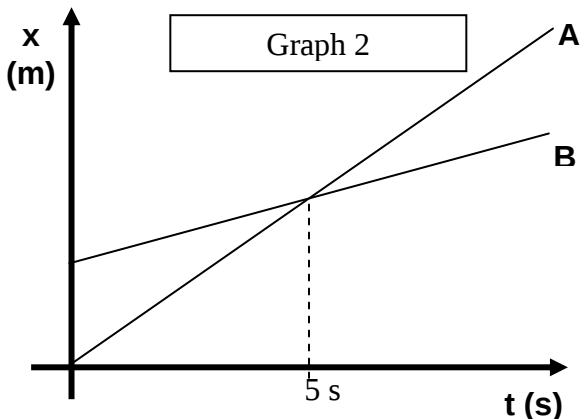
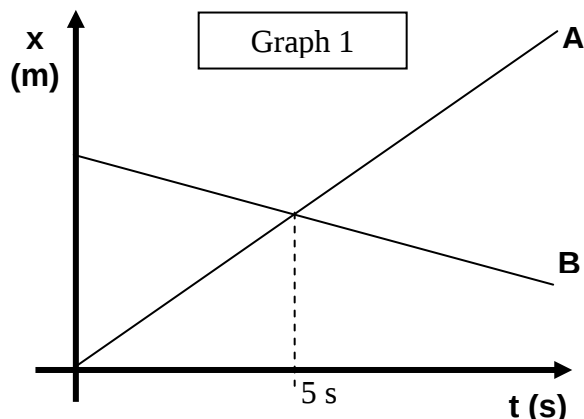


Position vs. Time Graphs and Velocity

Name: _____ Period: ____ Date: _____

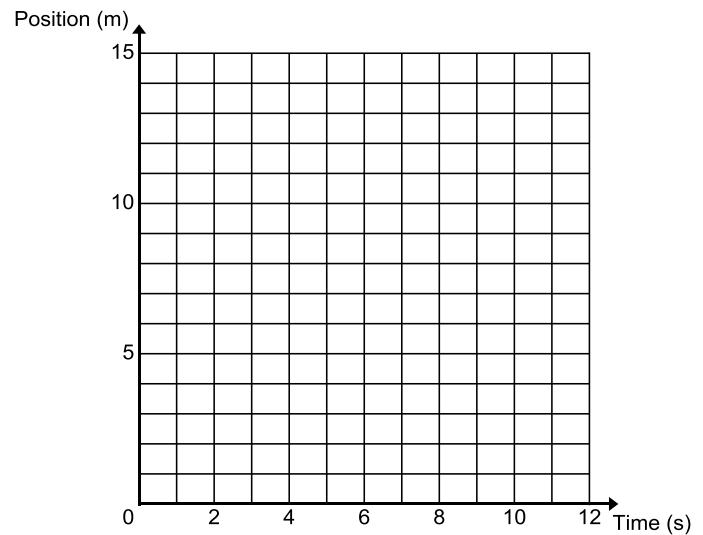
Consider the position vs. time graph below for cyclists A and B. (There are no calculations!)



1. Looking at graph 2, do the cyclists start at the same position? How do you know? If not, which one is further to the right?
2. How does the motion of the cyclist A in the graph 1 compare to that of A in graph 2?
3. How does the motion of cyclist B in the graph 1 compare to that of B in graph 2?
4. Which cyclist has the greater speed in graph 1? How do you know?
5. Which cyclist has the greater velocity in graph 2? How do you know?
6. Describe what is happening at the intersection of lines A and B of graph 1.

Robin, roller skating down a marked sidewalk, was observed to be at the following positions at the times listed below.

t (s)	x (m)
0.0	0.0
2.0	6.0
4.0	12.0
6.0	12.0
8.0	8.0
10.0	4.0
12.0	0.0



7. Plot the position vs. time graph for the skater.
8. Describe the object's velocity between the times: $t = 0\text{s}$ to $t = 4\text{s}$? If possible, include the magnitude and direction of the velocity.
9. Describe the object's velocity between the times: $t = 4\text{s}$ to $t = 6\text{s}$? If possible, include the magnitude and direction of the velocity.
10. Describe the object's velocity between the times: $t = 6\text{s}$ to $t = 12\text{s}$? If possible, include the magnitude and direction of the velocity.
11. Determine the skater's average **speed** from $t = 0\text{s}$ to $t = 12\text{s}$.
12. Determine the skater's average **velocity** from $t = 0\text{s}$ to $t = 12\text{s}$.
13. What is the skater's instantaneous velocity at 9 seconds?