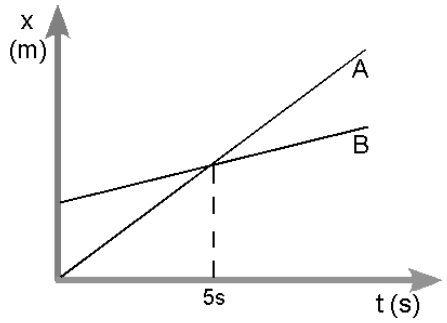
Name_____

Date_____**Pd**____

UNIT I: Worksheet 1

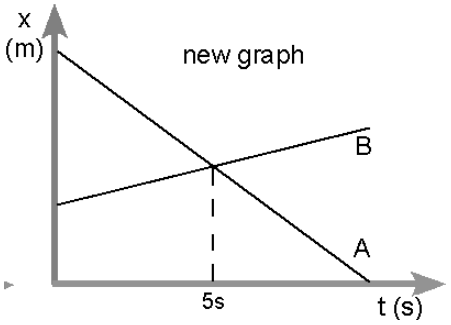


1. Consider the position vs. time graph for cyclists A and B.

a. Do the cyclists start at the same point? How do you know? If not, which is ahead?

b. Which cyclist is travelling faster at t = 3s? How do you know?

c. Are their velocities equal at any time? How do you know?



2. Consider the new position vs. time graph below for cyclists A and B.

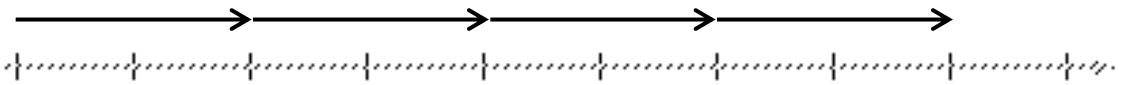
a. How does the motion of the cyclist A in the new graph compare to that of A in the previous graph?

b. How does the motion of cyclist B in the new graph compare to that of B in the previous graph?

c. Which cyclist has the greater speed? How do you know?

d. Describe what is happening at the intersection of lines A and B.

e. Which cyclist traveled a greater distance during the first 5 seconds? How do you know?



3. From the motion map above, answer the following:

   a. What can you conclude about the motion of the object?

   b. Draw a qualitative graphical representation of **x** vs **t** (see below).

   c. Draw a qualitative graphical representation of **v** vs **t** (see below).

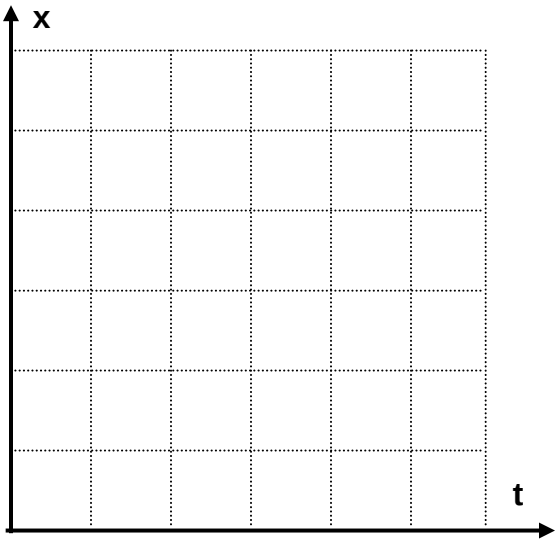


fig. 1

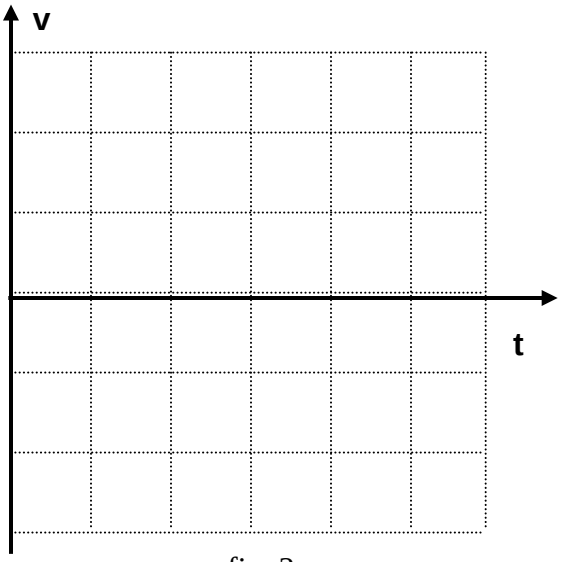


fig. 2

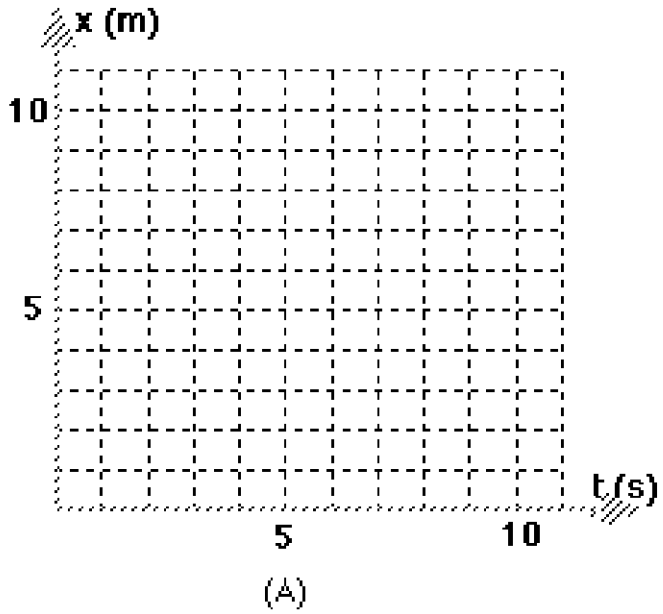
   d. Write a mathematical expression that represents the relationship between **x** and **t**, from fig. 1.

   e. Write a mathematical expression that represents the relationship between **v** and **t**, from fig. 2

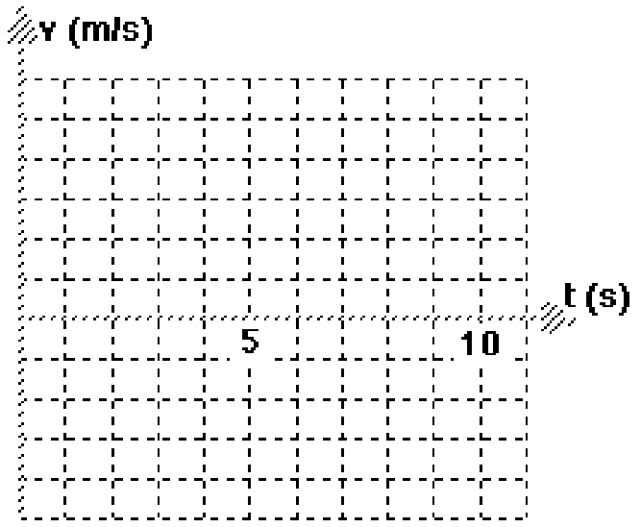
   f. Describe what the area under the curve in fig. 2 represents. Cross hatch this area.

4. From the position vs. time data below, complete the graphs and answer the following questions.

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



(A)



(B)

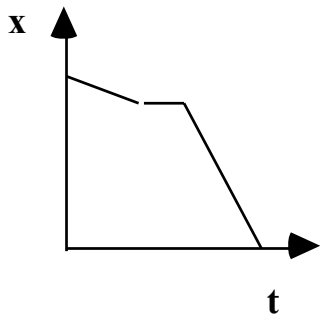
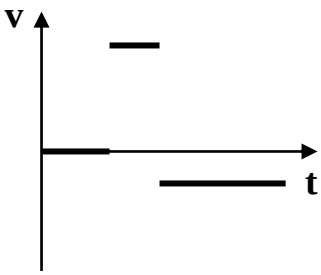
c. Draw a motion map for the object.

d. Determine the displacement from t = 3.0s to 5.0s using graph B.

e. Determine the displacement from t = 7.0 s to 9.0 s using graph B.

f. Determine the skater's average **speed** from t = 0s to t = 9s.

g. Determine the skater's average **velocity** from t = 0s to t = 9s.

	5	6	7	8
x vs. t graph				
v vs. t graph				
Written Description			Object A starts 10m to the right of the origin and moves to the left at 2 m/s. Object B starts at the origin and moves to the right at 3m/s.	
Motion Map