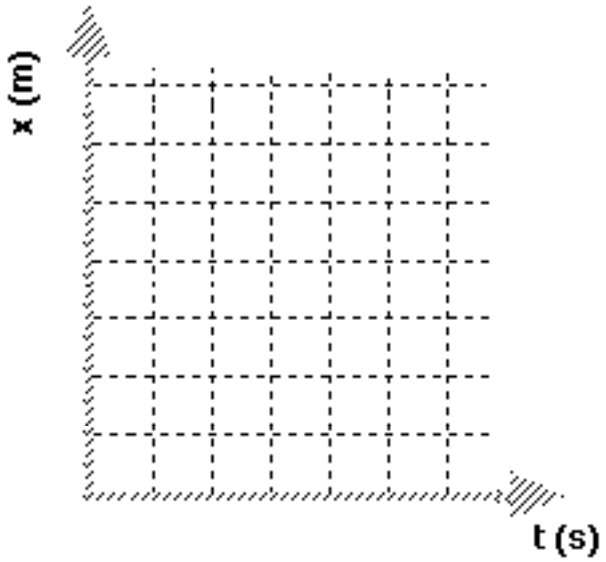
Name_____

Date_____Pd____

UNIT II: Worksheet 3

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	10.0
1.0	12.0
2.0	14.0
5.0	20.0
8.0	26.0
10.0	30.0



a. Plot a position vs. time graph for the skater.

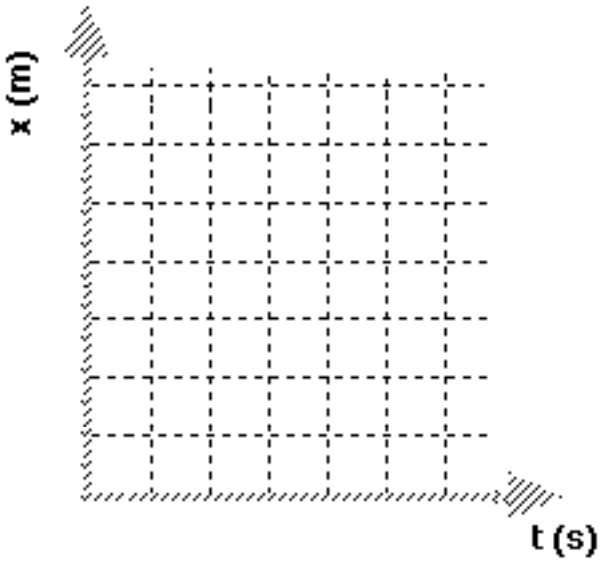
b. How far from the starting point was he at t = 6s? How do you know?

c. Write a mathematical model to describe the curve in (a).

d. Was his speed constant over the entire interval? How do you know?

2. The following data were obtained for a second trial:

t (s)	x (m)
0.0	4.0
2.0	10.0
4.0	16.0
6.0	22.0
8.0	28.0
10.0	34.0



a. Plot the position vs. time graph for the skater.

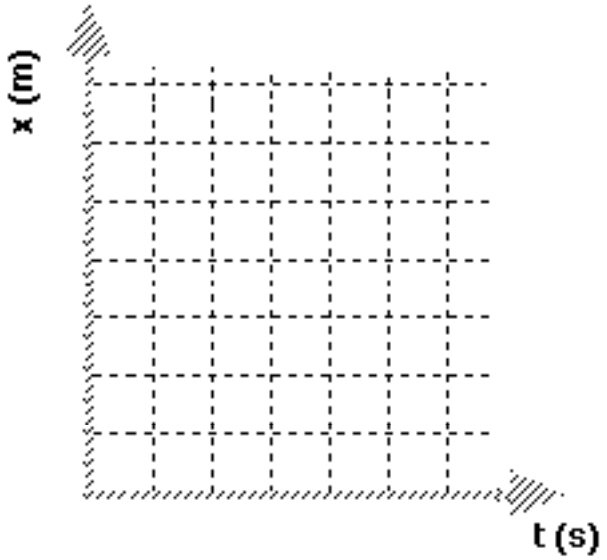
b. How far from the starting point was he at t = 5s? How do you know?

c. Was his speed constant? If so, what was it?

d. In the first trial the skater was further along at 2s than he was in the second trial. Does this mean that he was going faster? Explain your answer.

3. Suppose now that our skater was observed in a third trial. The following data were obtained:

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



a. Plot the position vs. time graph for the skater.

b. What do you think is happening during the time interval: t = 4s to t = 6s? How do you know?

c. What do you think is happening during the time interval: t = 6s to t = 12s? How do you know?

d. Determine the skater's average **speed** from t = 0s to t = 12s.

e. Determine the skater's average **velocity** from t = 0s to t = 12s.