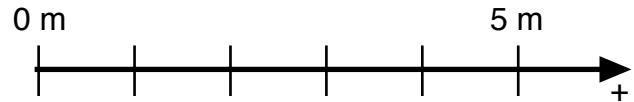
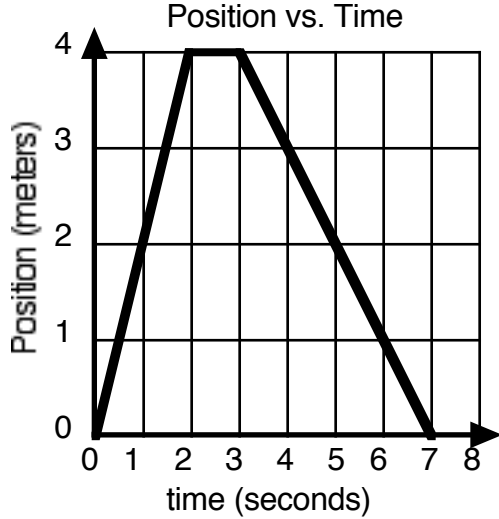


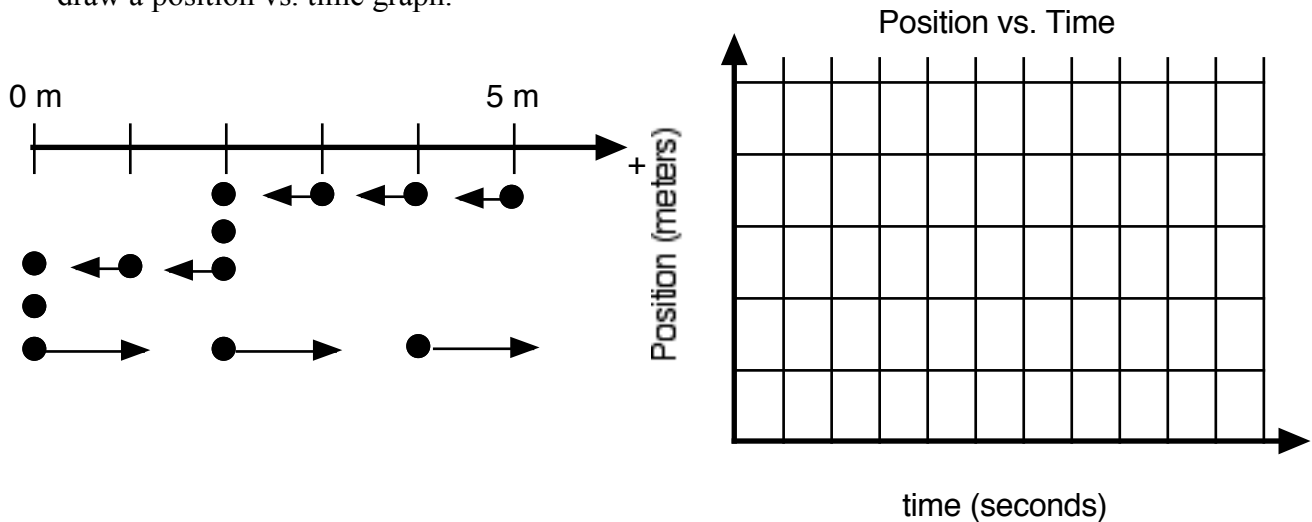
Constant Velocity Particle Model Worksheet 1: Motion Maps and Position vs. Time Graphs

1. Given the following position vs. time graph, draw a motion map with one dot for each second.



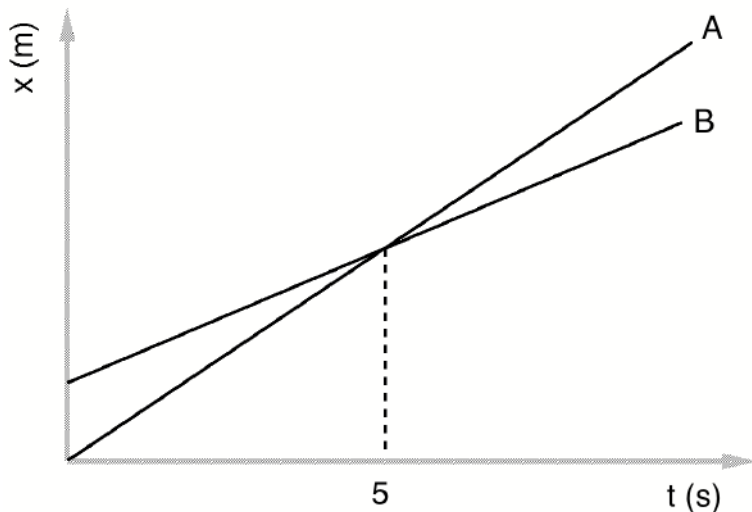
Describe the motion of the object in words:

2. Given the following motion map, where positions have been recorded with one dot each second, draw a position vs. time graph.



Describe the motion of the object in words:

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



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

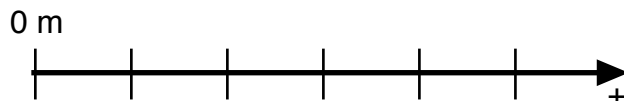
b. At $t = 7\text{s}$, which cyclist is ahead? How do you know?

c. Which cyclist is traveling faster at 3s ? How do you know?

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

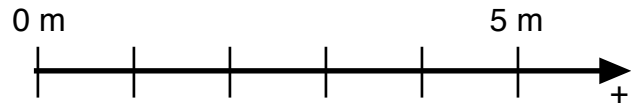
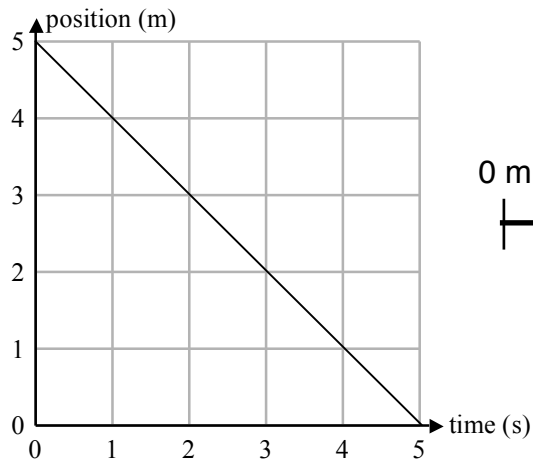
e. What is happening at the intersection of lines A and B?

f. Draw a motion map for cyclists A and B.

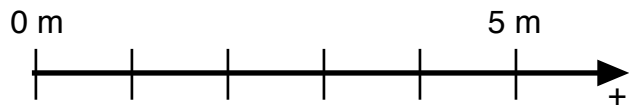
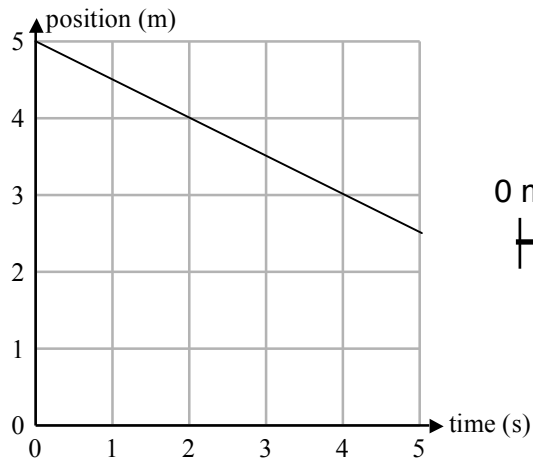


Produce a Motion Map from each position vs. time graph.

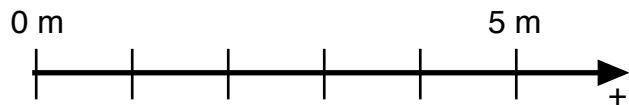
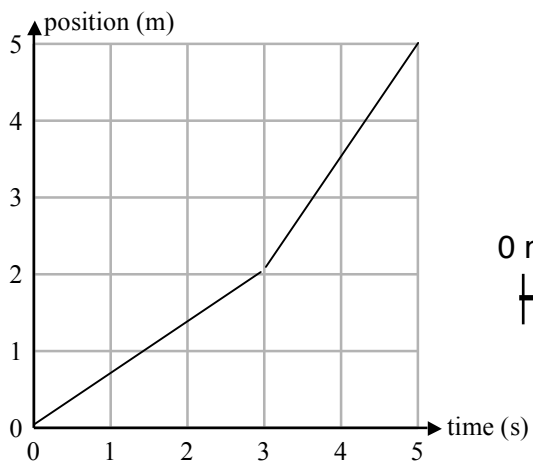
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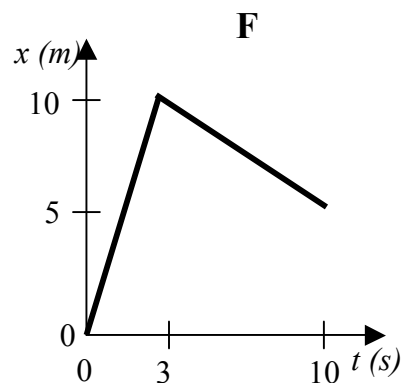
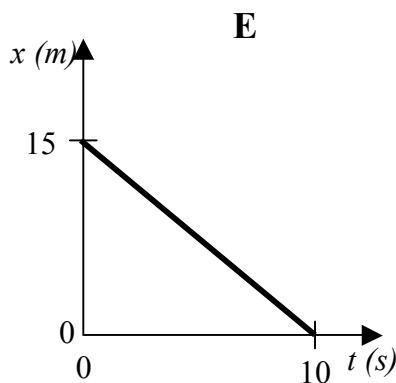
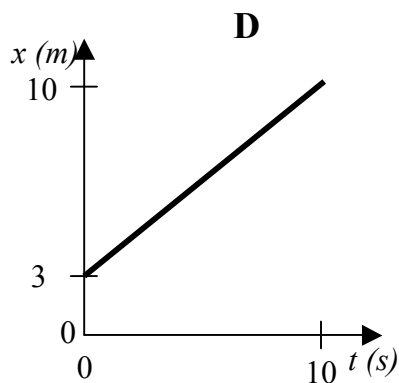
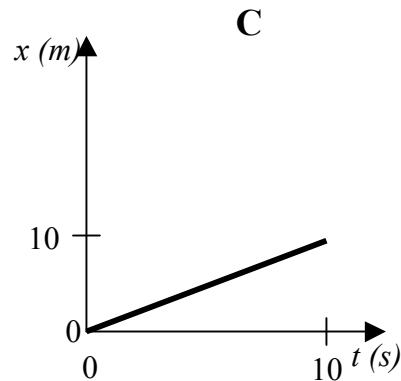
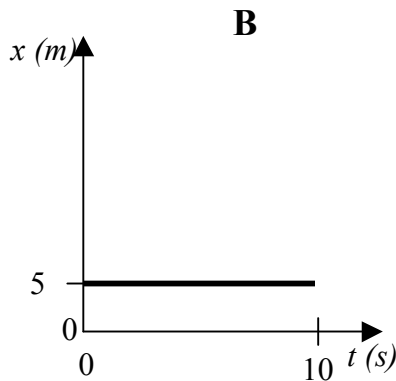
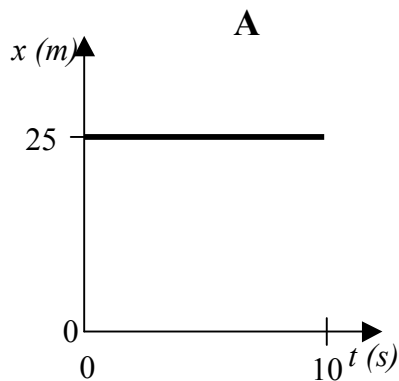
5.



6.



7. To rank the following, you may need to look at the key ideas sheet for the difference between *displacement* and *distance (odometer reading)*.



a. Rank the graphs according to which show the greatest **displacement** from the beginning to the end of the motion.

Most positive \rightarrow 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ \leftarrow Most negative

Explain your reasoning for your ranking:

b. Rank the graphs according to which show the greatest **distance (odometer reading)** from the beginning to the end of the motion.

Greatest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ Least

Explain your reasoning for your ranking: