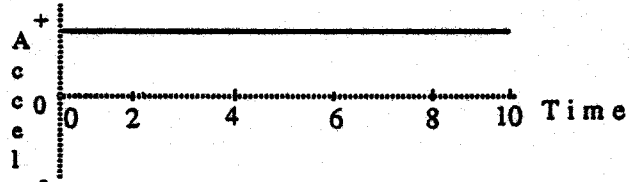


Name \_\_\_\_\_

Lab Partner(s) \_\_\_\_\_

## HOMWORK: INTRODUCTION TO MOTION--CHANGING MOTION

After studying the acceleration and velocity graphs you made, answer the following questions.



1. An object moving along a line (the + distance axis) has the acceleration-time graph above. How might the object move to create this graph

A. If it is moving away from the origin

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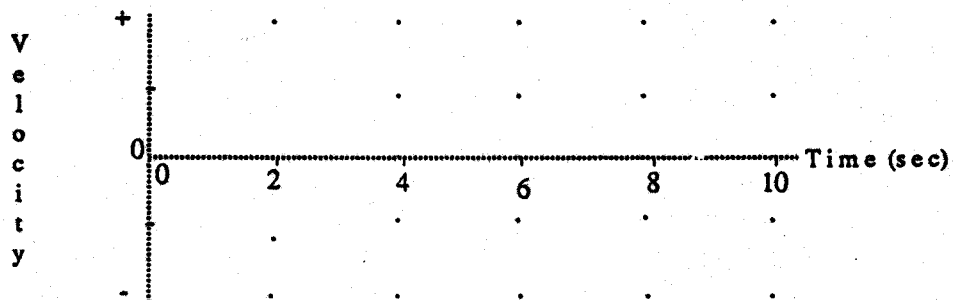
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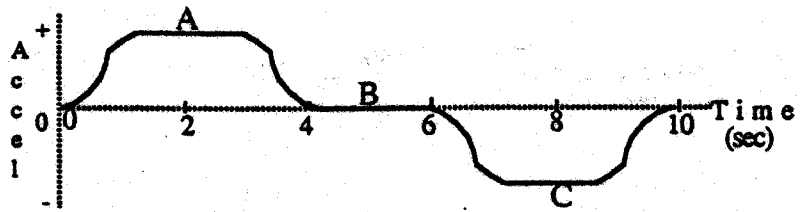
B. If it is moving toward the origin

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2. Sketch on the axes below the velocity-time graphs that go with the above acceleration-time graph (for cases A and B). Label your graphs.

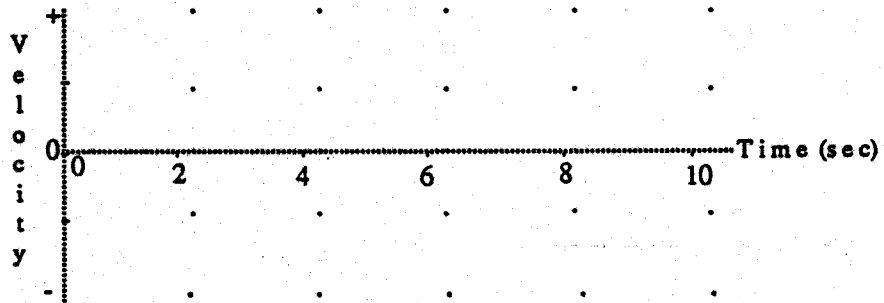




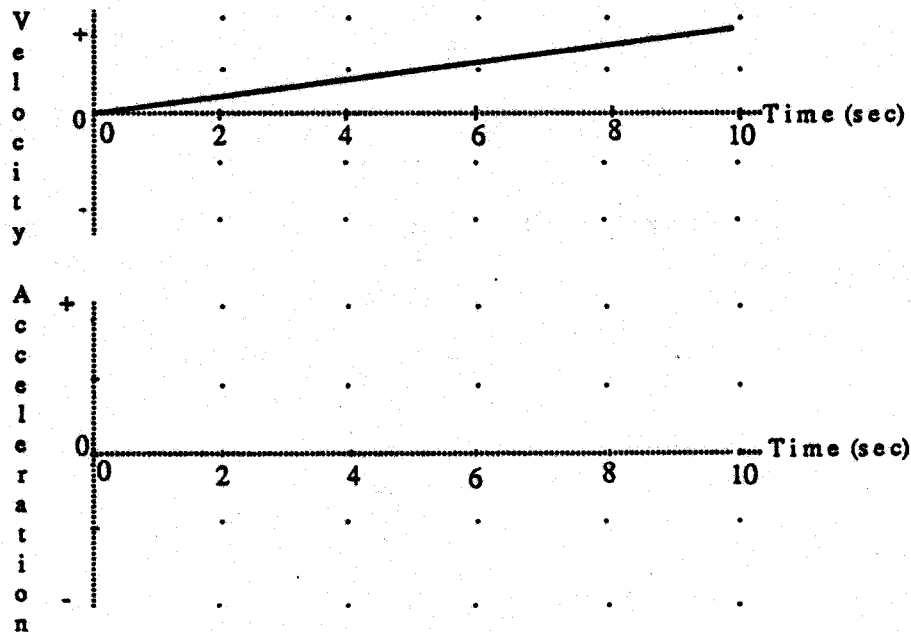
3. How would an object move to create each of the three labeled parts of the acceleration-time graph above?

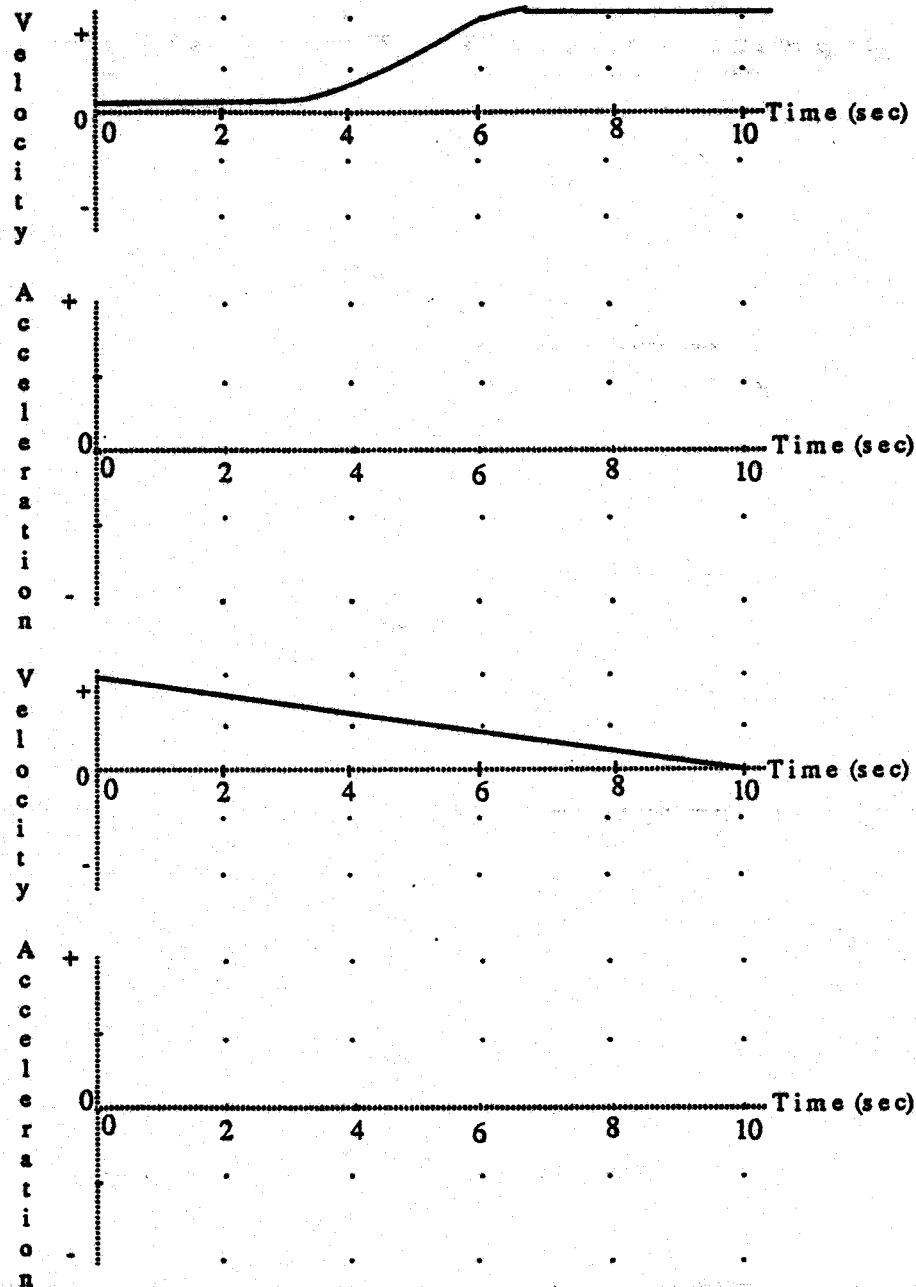
- A: \_\_\_\_\_  
 B: \_\_\_\_\_  
 C: \_\_\_\_\_

4. Sketch below a velocity-time graph which might go with the above acceleration-time graph.



5. For each of the velocity-time graphs below, sketch the shape of the acceleration-time graph that goes with it.

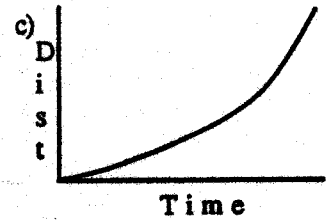
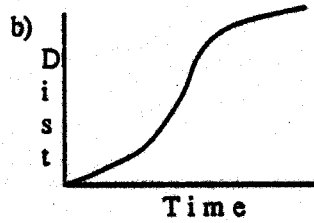
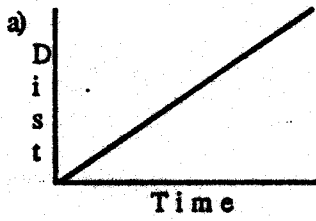




6. A car moves along a line [the + distance (position) axis]. Fill in the table below with the sign (+ or -) of the velocity and acceleration of the car for each of the motions described.

	Distance (Position)	Velocity	Acceleration Speeding Up	Acceleration Slowing Down
Car moves away from the origin	+			
Car moves toward the origin	+			

7. Which position-time graph below could be that for a cart that is steadily accelerating away from the origin?



8. Describe how you would move to produce the velocity time graph on the right.

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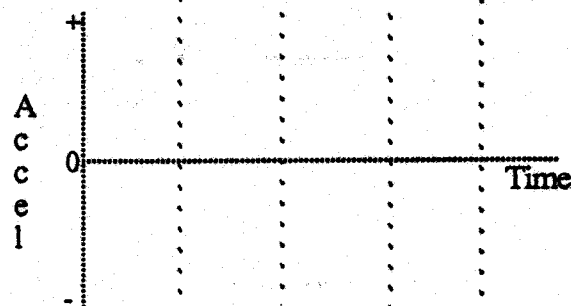
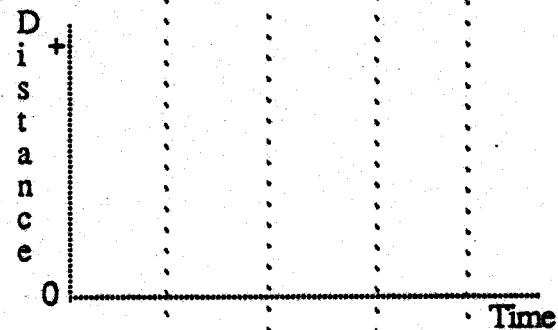
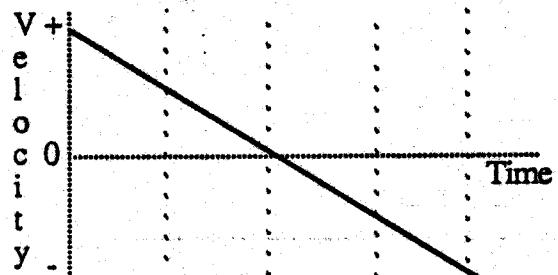
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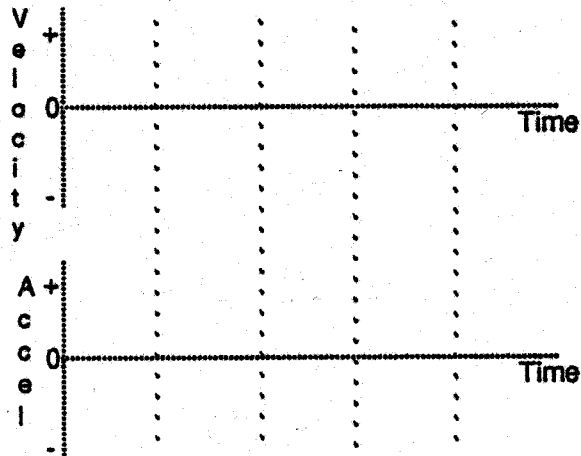
9. Sketch a distance-time graph for this motion on the axes on the right.

10. Sketch an acceleration-time graph for this motion on the axes on the right.

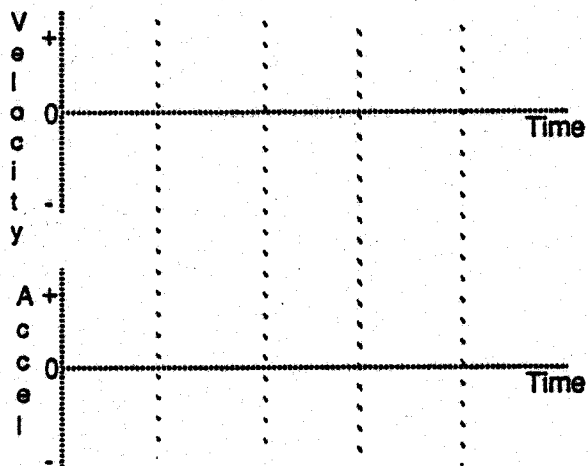


A car can move in either direction along a line (the + distance axis). Sketch velocity-time and acceleration-time graphs which correspond to each of the following descriptions of the car's motion.

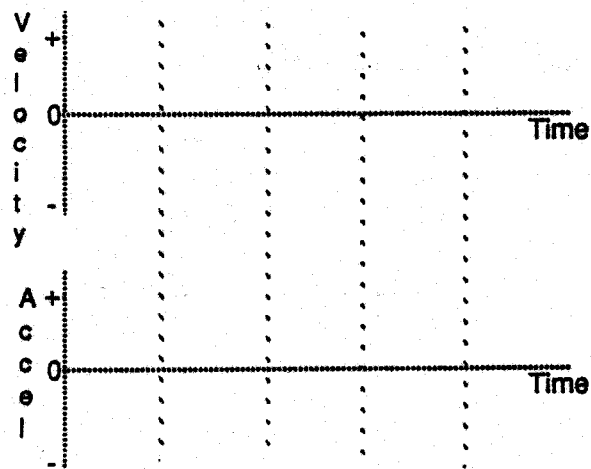
11. The car starts from rest, and moves away from the origin increasing its speed at a steady rate.



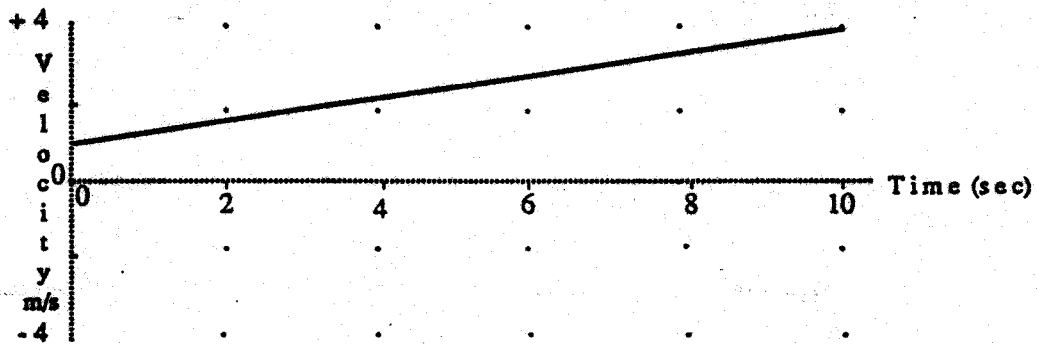
12. The car is moving toward the origin at a constant velocity.



13. The car starts from rest, and moves toward the origin, speeding up at a steady rate.



14. The following is a velocity-time graph for a car.



What is the average acceleration of the car? Show your work below.

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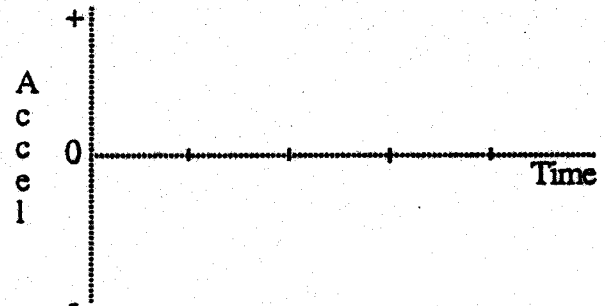
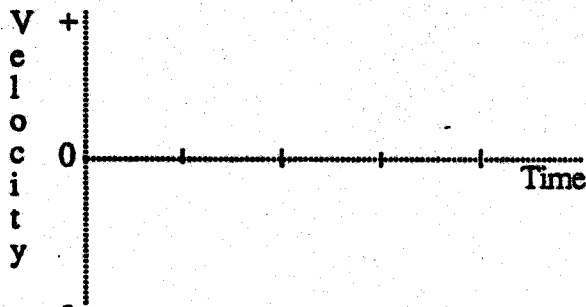


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15. A ball is tossed in the air. It moves upward, reaches its highest point and falls back downward. Sketch a velocity-time and an acceleration-time graph for the ball from the moment it leaves the thrower's hand until the moment just before it reaches her hand again. Consider the positive direction to be upward.



The graphs on this page represent the motion of objects along a line which is the positive distance (position) axis. Notice that the motion of objects is represented by distance, velocity, or acceleration graphs.

Answer the following questions. You may use a graph more than once or not at all, and there may be more correct choices than blanks. If none of the graphs is correct, answer J.

\_\_\_16. Pick one graph that gives enough information to indicate that the velocity is always negative.

Pick three graphs that represent the motion of an object whose velocity is constant (not changing).

\_\_\_17. \_\_\_18. \_\_\_19.

\_\_\_20. Pick one graph that definitely indicates an object has reversed direction.

\_\_\_21. Pick one graph that might possibly be that of an object standing still.

Pick 3 graphs that represent the motion of objects whose acceleration is changing.

\_\_\_22. \_\_\_23. \_\_\_24.

Pick a velocity graph and an acceleration graph that could describe the motion of the same object during the time shown.

\_\_\_25. Velocity graph.

\_\_\_26. Acceleration graph.

