

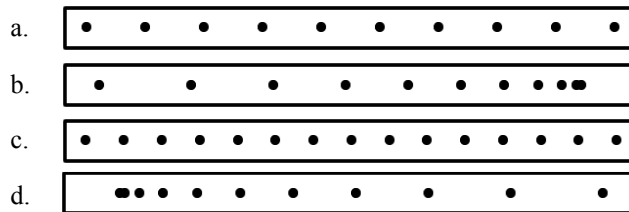
2009 Linear Motion 1

Use your "Speed" notes and "Acceleration" notes to answer the following:

1. The dots at the right show the positions of four different objects each second.

(There can be more than one answer for each question).

- Which of the objects is at constant speed?
- Which of the objects is speeding up to the right?
- Which of the objects is slowing down to the right?
- Which of the objects have a positive acceleration?
- Which of the objects have zero acceleration?

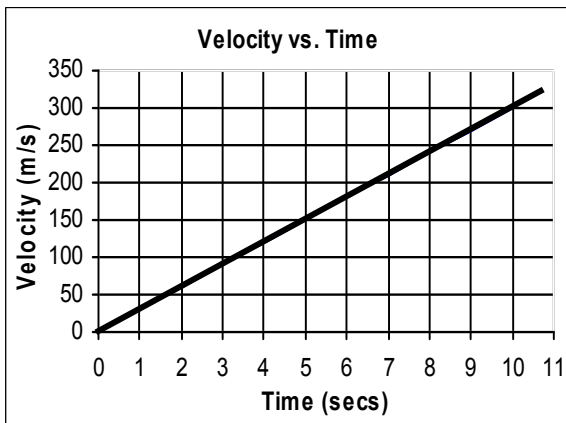
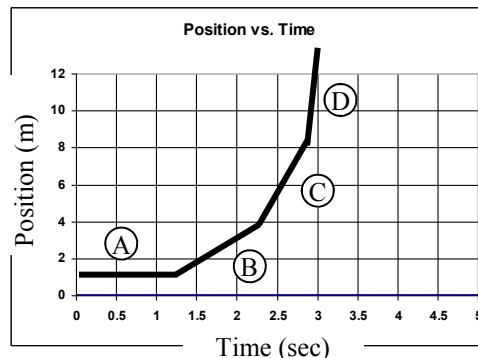


2. An object is moving at a constant velocity of 4 m/s and travels 120 m.

- Since the object is at constant velocity, does the object change speed?
- What is the final velocity of the object?
- What is the acceleration of the object?
- Calculate the time it took for the object to go 120m.

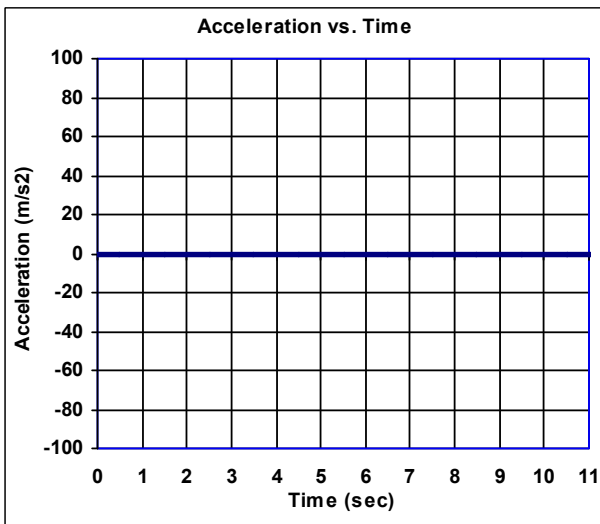
3. Use the position vs time graph at the right to answer the following.

- Which segment has the fastest velocity?
- Which segment shows the object at rest?
- Give the letters from slowest to fastest:
- What is the object doing (use the information from the above answers)?



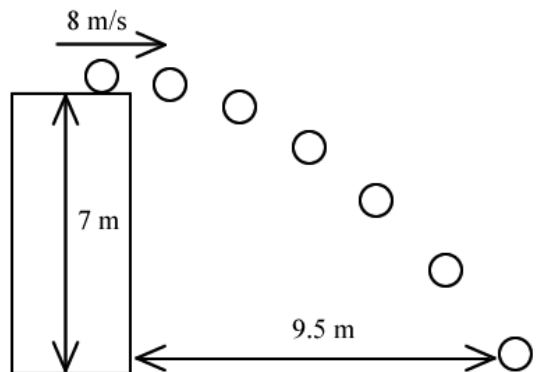
4. Use the graph at the left to answer the following.

- What is the initial velocity of the object?
- What is the velocity of the object after 10 sec?
- So the object is changing:
- Calculate the slope of the line.
- What is the acceleration of the object?
- Graph this acceleration on the graph at the lower left.



5. For the object below:

- $V_i =$
- $\Delta x =$
- $\Delta y =$



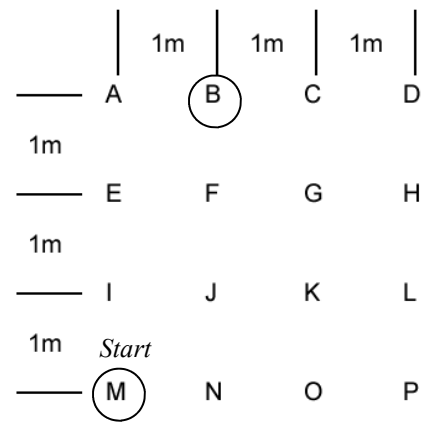
6. For the object at the right:

- A. $\Delta x =$
- B. $\Delta y =$

7. $-(-8) =$

8. A. An object is moving -10 m/s, then it accelerates for 3 seconds. Afterwards it is moving -40 m/s. Calculate the acceleration of the object.

Variables: Equation: Solve:

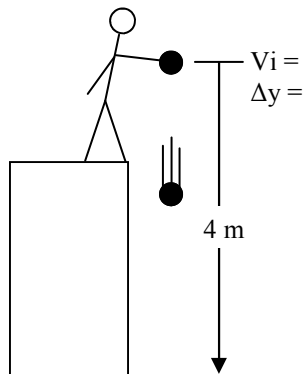


B. So, is this object experiencing a positive or negative acceleration?

9. A. An object is moving -15 m/s. After 2 seconds it stops. Calculate its acceleration.

Variables: Equation: Solve:

B. Is this object experiencing a positive or negative acceleration?



Meet Slim Jim, he's very slim. Jim is going to help us understand physics, this year.

10. Slim Jim drops a ball from 4 m up.

A. Jim is holding onto the ball to begin with, so what is its initial velocity?

B. Since the ball is DROPPED, what is Δy for the ball?

11. A rock is sitting on the edge of a 12 m tall cliff. It is then bumped off and falls to the ground below.

A. $V_i =$

B. $\Delta y =$