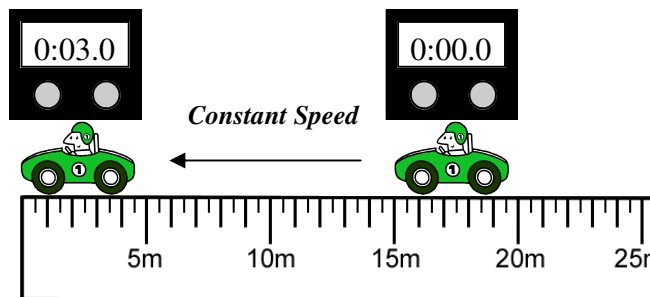
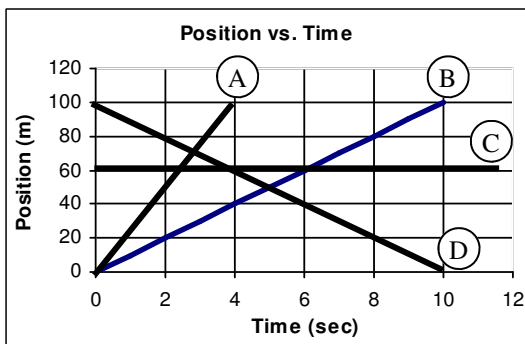


2012 PreAP Linear Motion 5



1. A. Is the car at the right moving left or right?
- B. Is this the + or - x direction?
- C. What is the ΔD for the object?
(Use the same part of the car to measure.)
- D. What is the ΔT ?
- E. What is the speed of the object?

F. (Careful) What is the velocity of the object?



2. Assuming right is positive, which line segment or line segments...
 - A. Shows the fastest speed?
 - B. Shows an object moving to the right?
 - C. Shows an object moving to the left?
 - D. Shows an object at rest?
 - E. Shows positive velocity?
 - F. Shows negative velocity?

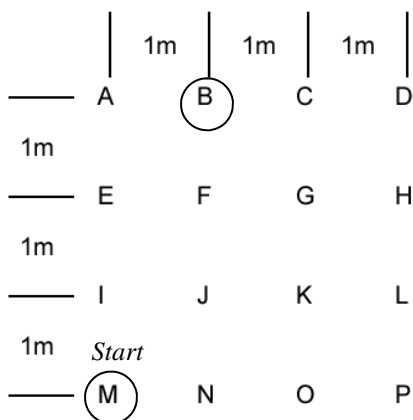
From the "Acceleration" Notes:

3. What are the two ways you know an object is accelerating?

The symbol " Δ " is delta and means "change of". Δ always equals final - initial. So, $\Delta x = x_f - x_i$ and $\Delta v = v_f - v_i$. Also, remember that left is negative and right is positive for velocity and position.

4. An object is moving 30 m/s to the right. After 5 seconds it is moving 10 m/s to the left.
 - A. * $V_i =$
 - B. * $V_f =$
 - C. $t =$
 - D. * Calculate the acceleration of the object.

5. An object is moving 25 m/s to the left. After 8 seconds it is moving at only 12 m/s to the left.
 - A. $V_i =$
 - B. $V_f =$
 - C. $t =$
 - D. Calculate the acceleration of the object.



- Using your "Position, Distance, Displacement" notes:
6. A track has a perimeter of 120 m. If you walk completely around the track 3 times...
 - A. What distance did you walk?
 - B. What is your displacement?
 7. The object at the left starts at M and moves to B. Find the following displacements:
 - A. $\Delta x =$
 - B. $\Delta y =$
 8. If an object moves from L to N, give the vertical and horizontal displacements.

$$\bar{V}_{ave} = \frac{\Delta x}{\Delta t} \quad \leftarrow \text{Displacement, not distance} \quad S_{ave} = \frac{D_{total}}{t_{total}} \quad S = \frac{\Delta D}{\Delta t} \quad \text{Instantaneous speed is at a particular moment. Your speedometer shows instan-}$$

9. An object moves 24 m to the right in 6 seconds and then 10 m to the left in 2 seconds.
 - A. * What is the total distance traveled?
 - B. Calculate the average speed of the object for the journey.
 - C. * What is the total displacement of the object (remember +s and -s)?
 - D. Calculate the average velocity of the object.
 - E. What is the instantaneous speed 3 seconds into the journey?

Answers:

4A) +30 m/s

4B) -10 m/s

4C) 5sec

4D) -8 m/s^2

9A) 34 m

9C) 14 m