A-day: Due Tues., Sept 22
B-day: Due Wed., Sept 23

2009 Linear Motion 4

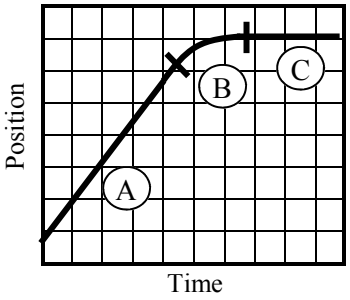
1. A person throws an object into the air going 12 m/s. It lands back on the ground. Calculate the time it was in the air.
   Variables: Equation: Solve:

2. An object is thrown into the air going 17 m/s. How high does it go?
   Variables: Equation: Solve:

3. An object at rest starts to accelerate. It accelerates for 15 seconds and ends up going 35 m/s to the left. Calculate acceleration.
   Variables: Equation: Solve:

4. A ball is rolling 1.8 m/s for 4.2 seconds. If it has zero acceleration, how far does the ball roll?

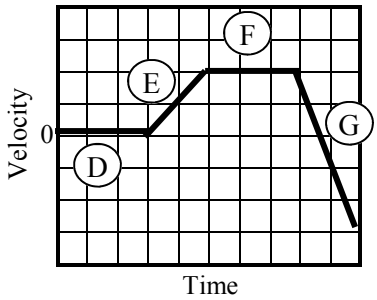
Graph I Position vs. Time



5. +, −, or 0
   A. _____ Acceleration of an object moving at constant speed.
   B. _____ Velocity of an object that has a positive change of position.
   C. _____ Δx for an object with negative speed.
   D. _____ Velocity of an object that has no change of position.
   E. _____ Δv for an object with negative acceleration.
   F. _____ Velocity for an object with no change of position.
   G . _____ Acceleration for an object with negative change of velocity.

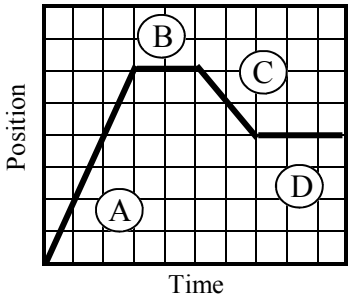
6. Use the two graphs at the right to answer the following.
   (*There can be more than one answer*.)
   A) _____ Which segment/s show an object at rest?
   B) _____ Which segment/s show an object with positive Δv?
   C) _____ Which segment/s show an object with positive velocity?
   D) _____ Which segment/s show an object with negative velocity?
   E) _____ Which segment/s show an object with positive acceleration?
   F) _____ Which segment/s show an object with negative acceleration?

Graph II Velocity vs. Time

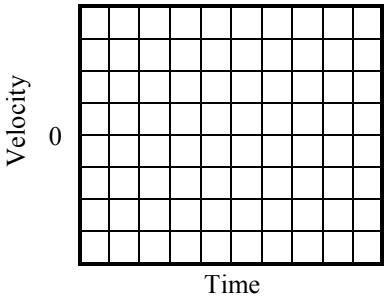


7. Transfer the position vs. Time graph to the velocity and acceleration graphs below.
   You can assume that each vertical square is 1 m and each horizontal square is 1 sec.

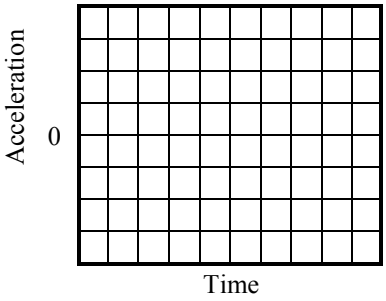
Position vs. Time



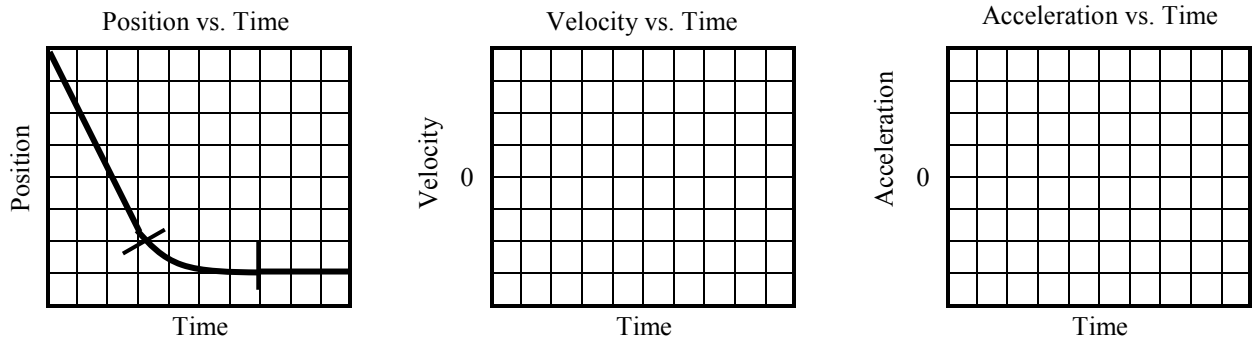
Velocity vs. Time



Acceleration vs. Time



8. Transfer the Position vs. Time graph to the velocity and acceleration graphs below.
   Again, each vertical square is 1 m and each horizontal square is 1 sec.



See "Linear Motion 3" homework for DNA notes.

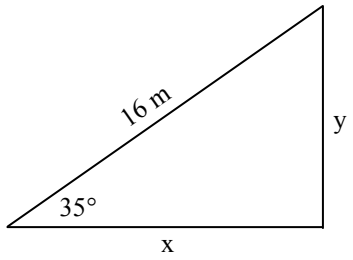
9. DNA, mRNA, or tRNA? (*Can be more than one.)*
   A. _____Has Uracil.
   B. _____Has nitrogen bases.
   C. _____Is a double helix.
   D. _____Is made in translation.
   E._____Is only found in the nucleus.
   F. _____Has an amino acid attached to it.
   G. _____Has a sugar and phosphate side.

Using your "Trigonometry Basics" notes: (*You will need a scientific calculator for the following*)

10. A. Sin30° = B. Cos40 = C. Tan20° =

11. A. If $\sin\theta = 0.7222$, use inverse sin to find θ. B. If $\cos\theta = 0.5$, then θ =

12. Since $\sin\theta = \frac{\text{opp.}}{\text{hypo.}}$ solve for opp.



13. Use the triangle at the left to answer the following:
   A. Which is the hypotenuse?
   B. Which is the side adjacent to the angle?
   C. Which is the opposite side?
   D. What is θ?

   E. If you want to find the length of the y, would you use sin or cos?

   F. Find the length of y.