A-Day: Due Wed., Sept 17 (Assigned: 9/15)
B-Day: Due Thurs., Sept 18 (Assigned: 9/16)

2008 Linear Motion 8

1. A. Convert 60m/s to miles per sec.

3.3 ft = 1 m
5280 ft = 1 mi
12 in = 1 ft
I assume you know about seconds, mins, etc

2. Convert 15,000 m to megameters (Mm).

3. A person throws an object into the air going 8 m/s. It lands back on the ground.
   A. What two positions on the freefall diagram? From ____ to ____
   B. For the following give numbers if you can. If you can't give +, −, or 0.

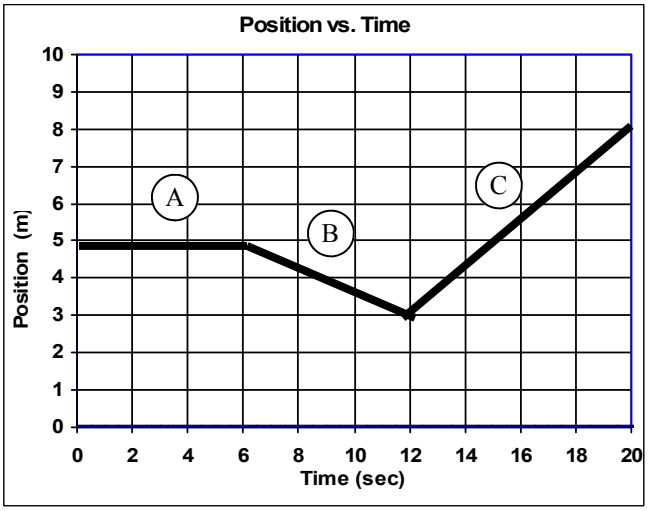
   _____ v_i = _____; v_f = _____; a = _____; Δy = _____.

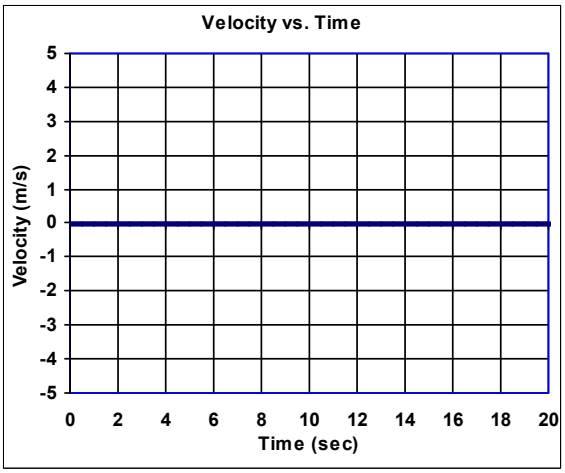
4. An object is thrown into the air going 17 m/s. How high does it go?
   A. What two positions on the freefall diagram? From ____ to ____
   B. Write variables and solve.

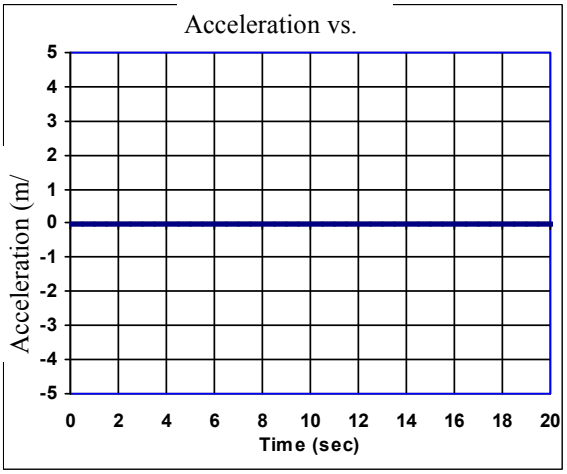
5. An object at rest starts to accelerate. It accelerates for 15 seconds and ends up going 35 m/s to the left.
   A. Since it is moving to the left, is this freefall?
   B. So, is the object's acceleration –9.8 m/s^2?
   C. Calculate the acceleration of the object.

6. +, −, 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.

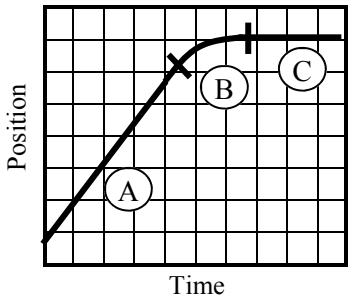
7. Use the three graphs to answer the following.
   A. Calculate the velocity of each of the three segments on the graph.
   B. Transfer this information to the velocity and acceleration graphs.



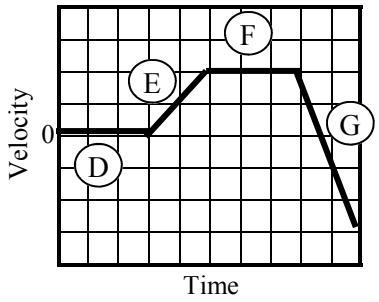




Graph A Position vs. Time



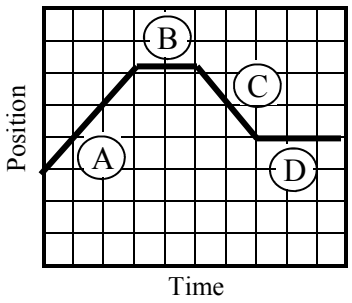
Graph B Velocity vs. Time



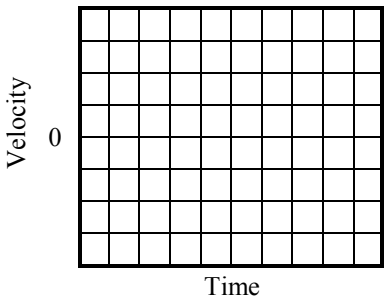
8. Use the graphs above to answer the following. There can be more than one answer.
   A) _____ Which segment/s show an object at rest?
   B) _____ Which segment/s show an object with positive Δv?
   C) _____ Which segment/s show an object with positive velocity?
   D) _____ Which segment/s show an object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

9. Transfer the position vs time graph to the other two graphs.

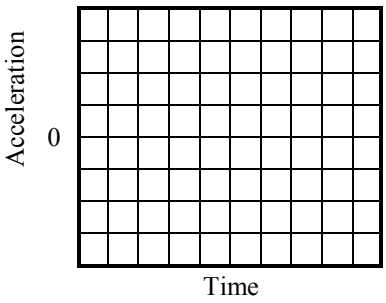
Position vs. Time



Velocity vs. Time

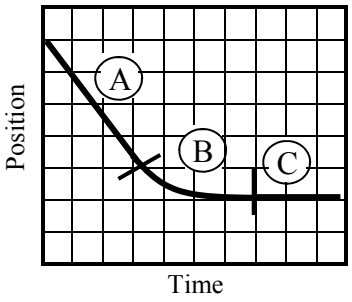


Acceleration vs. Time

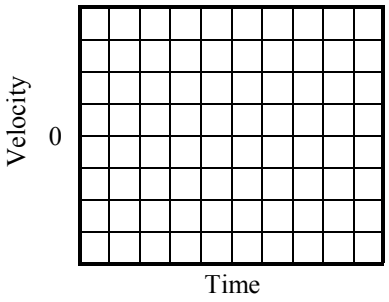


10. In the position vs time graph below,
    A. Does the slope of segment B change?
    B. So what does segment B show?
    C. Transfer the graph to the other graphs.

Position vs. Time



Velocity vs. Time



Acceleration vs. Time