A-Day: Due Tues., Sept 13 (Assigned: 9/11)
B-Day: Due Wed., Sept 14 (Assigned: 9/12)

Linear Motion 6

Remember: 1) I am available for tutoring if the math is hard (or anything else); 2) just setting up the variables, choosing an equation, and units are worth points. ALSO—BIG HINT: Use Δx not D in all of these problems.

1) An object is moving 4 m/s to the right. If it moves 30 m to the right in 3.5 seconds, find the acceleration of the object.
Variables: Equation: Solve:

2) An object accelerates 2 m/s^2 for 6 seconds. If it travels 40 m to the right, what was its final velocity?
Variables: Equation: Solve:

3) An object going 6 m/s to the left ends up going 3 m/s to the left in 18 m (wouldn't that also be to the left?). How long did it take to make this journey?
Variables: Equation: Solve:

Use the "Freefall" notes (and the last homework) to answer the following questions.

4) When an object is thrown into the air, is its acceleration positive or negative?
5) When an object is thrown into the air at the very top the object's velocity is: _____.
6) When an object is thrown into the air, at the very top is the object's acceleration positive, negative, or zero?
7) What is the acceleration of an object thrown into the air (what is the actual number)?
8) What is the acceleration of a dropped object?
9) When an object is dropped, its initial velocity is:

Use the above (and the notes) to do the following problem:

10) A ball is sitting on a 2.5 meter tall table. It is bumped and falls to the ground. What is it's velocity just before it hits the ground?
A) Since it is sitting on a table, what is it's initial velocity? V_i = _____
B) Since it is falling, what is its acceleration? a = _____
C) How far does it fall?
D) Since the object is falling DOWN, is this distance positive or negative?
E) So, what is the displacement of the ball? Δx = _____
F) What are you looking for?
G) Set up the variables, equation, and solve.
Variables: Equation: Solve:

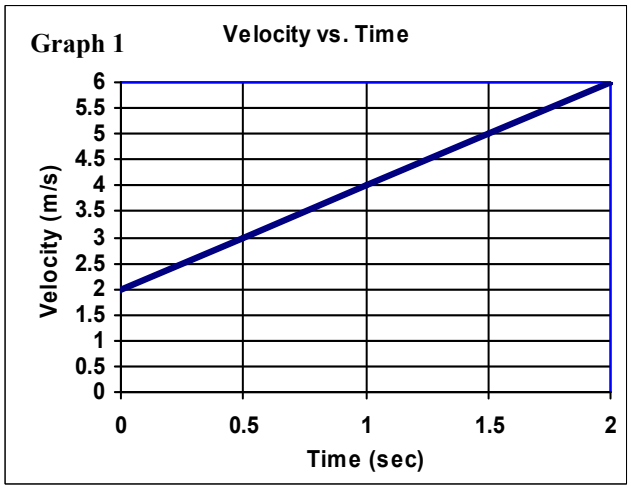
Remember that $4(4) = 4^2$ and $4/4 = 1$.

11) Do the following two math operations.
A) $\left(\frac{m}{1}\right)\left(\frac{ft}{m}\right) =$ B) $\left(\frac{m}{1}\right)\left(\frac{m}{ft}\right) =$

12) Three students measure a 215 g object. The numbers they read are 225 g; 235 g; and 205 g.
A) Was the measuring device accurate?
B) Was the measuring device precise?
C) Should they worry about calibrating the device?

Object 1 is Graph 1; Object 2 is Graph 2

13) On which graph does the slope means acceleration?
14) On which graph can you find initial position?
15) On which graph does the slope mean velocity?



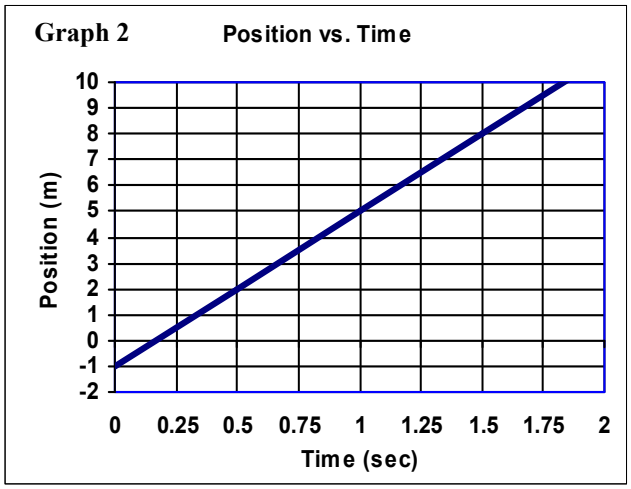
16) What is the initial position of the Object 2?

17) What is the acceleration of Object 1?

18) What is the initial velocity of Object 1?

19) What is Object 2's velocity?

20) Write the linear equation for Graph 1 below.



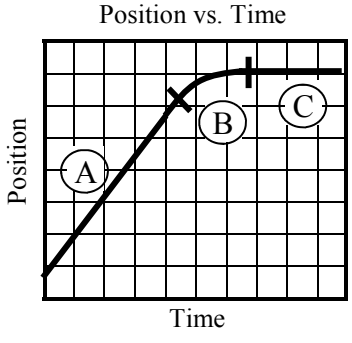
21) When will Object 1 reach 9.2 m/s?

22) Write the linear equation for Graph 2 below.

23) Where is Object 2 at 4.2 seconds?

24) Use the following graphs to answer the following:
A) Which segment or segments below show an object at rest?
B) Which segment or segments below show an object with positive acceleration?
C) Which segment or segments below show an object with positive velocity?
D) Which segment or segments below show an object with negative acceleration?

Graph A



Graph B