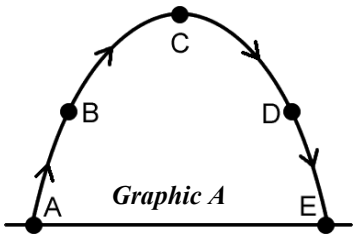
A-Day: Due Mon., Sept 17 (Assigned: 9/13)
B-Day: Due Tues., Sept 18 (Assigned: 9/14)

Linear Motion 7

When do you use d (distance) or Δx (displacement)? Use d to find basic speed. Use Δx to find acceleration and in more complex examples when you need the kinematic equations.

1) An object accelerates at 2 m/s^2 for 6 seconds. If the object was originally moving to the left at 10 m/s, find its final velocity.
Variables: Equation: Solve:

2) A ball is thrown into the air at 12 m/s. How far into the air will the ball rise?
A) To find "how far into the air" means from where it is thrown to the very top, so V_f = _____.
B) What is the acceleration of the ball?
C) What variable are you looking for?
D) Solve.
Variables: Equation: Solve:



Graphic A

3) A person throws an object into the air with a velocity of v_i.
A) What will the final velocity be when it returns to the person on the way down?
(*I am asking in general. Give me a variable answer, not a number.)*
B) Which two letters in Graphic A represent this object's journey?
C) What will be the vertical *displacement* of the object during the trip?

Thinking of our pictures of a falling object:

4) When an object falls, which of the following describes the object's displacement? (*choose 1*)
A) It is constant.
B) It increases as it falls.
C) It decreases as it falls.

5) A person standing on a 5 m tall cliff throws an object up into the air. If the object is in the air for 6 seconds and lands on the ground below, find how fast the person threw the ball.
A) What is the displacement of the object?
B) What is the acceleration of the object?
C) What are you looking for?
D) Which two letters in Graphic A represent the ball's flight?
E) Solve:
Variables: Equation: Solve:

Use your book to answer the following.

6) What is *terminal velocity*?

7) If an object falls thru the air will it speed up forever? And why?

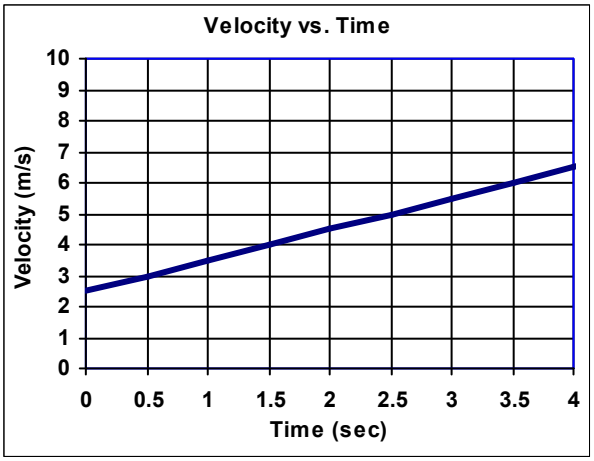
8) If 12 in = 1 ft, which of the following is correct to convert 26 in to ft? (A or B?)
A) $\left(\frac{26\text{ in}}{1}\right)\left(\frac{12\text{ in}}{1\text{ ft}}\right)=$ B) $\left(\frac{26\text{ in}}{1}\right)\left(\frac{1\text{ ft}}{12\text{ in}}\right)=$

C) Why?

9) Use the graph at the right to answer the following questions:
A. What is the initial velocity of the object?

B. What is the acceleration of the object?

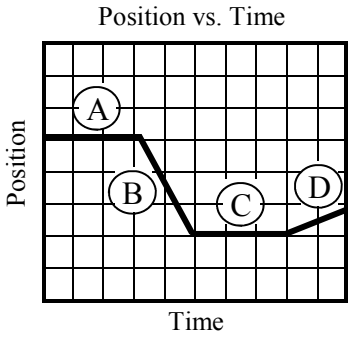
C. If the object were to move 20 m, that would be variable?
D. Find the time it took to move 20 m.
(The above tell you the variables, choose an equation, solve)
Variables: Equation: Solve:



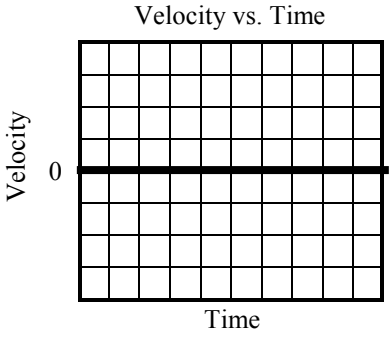
10) To find velocity you must know change of _____.

11) To find acceleration you must know change of _____.

12) Use the position vs time graph at the right to answer the following:
Positive, negative, or zero?
A. What is the change of position (Δx) of segment A? Δx_A =
B. So, what is the velocity of segment A? V_A =
C. Δx_B =
D. V_B =
E. Δx_C =
F. V_C =
G. Δx_D =
H. V_D =



13) Using the information you just found above, draw the velocity vs time graph for the above object: (Notice the thick line for zero.)



14) A) If 12 in = 1 ft, then convert 82 inches to feet.

B) If 3.3 ft = 1 meter, convert 3.5 meters to feet.

15) *From the previous bellwork:*

When you eat vegetables, you are eating like a _____. When you eat meat, you are eating like a _____.

Because you eat both, you are actually a _____. Fungi (who break down organic matter) are called _____. Plants are known as _____, animals are known as _____.