PreAP Due 9/10

Put the first two boxes worth of equations on your equation sheet. It should all be in the first column.

$$\Delta = final - initial$$

$$\Delta x = x_f - x_i$$

$$v = \frac{\Delta x}{t} \qquad S = \frac{D}{T}$$

$$a = \frac{\Delta v}{t} = \frac{v_f - v_i}{t}$$

$$y = mx + b \qquad m = \frac{\Delta y}{\Delta x}$$

Kinematic Equations

$$\Delta x = \frac{1}{2}(v_i + v_f)t$$

$$v_f = v_i + at$$

$$\Delta x = v_i t + \frac{1}{2}at^2$$

$$v_f^2 = v_i^2 + 2a\Delta x$$

$$\Delta x = v_f t - \frac{1}{2}at^2$$

Put the following on your variable sheet.

Δ	(no units)	Delta	Change of (always final – initial)
x	m	position	Where you are from a certain place
Δx	m	Displacement	Dist. from original position (can be 0)
D (or d)	m	Distance	How far you travel (total)
t	Sec	Time	Elapsed time
v	m/s	velocity	How fast you are moving with dir.
a	m/s^2	acceleration	How fast you change velocity
Δy	m	Vertical Displ.	Change of vertical distance

1) Speed or velocity: A) A car is driving 80 mph.   B) A person walking 4 m/s north.

2) What is the difference between a scalar quantity and a vector quantity?

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

4) How can an object not change speed, but be accelerating?

5) Velocity is positive or negative: A) if moving to the left: ____; B) if moving to the right: ____.

Looking on the equation sheet above: remember that "Δ (delta)" ALWAYS means "final – initial", so Δv = v_f – v_i.

6) An object is moving 30 m/s **_to the left_**. After 5 seconds it is moving 10 m/s to the left.   Find the acceleration of the object.
   <u>Variables</u>:   <u>Equation</u>:   <u>Solve</u>:

7) An object is moving 45 m/s **_to the right_**. After 7 seconds it is moving right at 10 m/s.   Find acceleration.
   <u>Variables</u>:   <u>Equation</u>:   <u>Solve</u>:

More questions on back

So, using the your answers from the previous 2 questions:

8) An object is moving to the left and speeding up.
    A) Is velocity positive or negative?
    B) Is acceleration positive or negative?
9) An object is moving to the right and slowing down.
    A) Is velocity positive or negative?
    B) Is acceleration positive or negative?
10) An object is moving to the right and speeding up.
    A) Is velocity positive or negative?
    B) Is acceleration positive or negative?
11) A car is going 8 m/s.
    A) How far is it traveling each second?
    B) How far will it travel in 3 seconds?
    C) How far will it travel between second 12 and 13?

12) Use the tape timers at the right to answer the following.
    A. Which represents constant speed?
    B. Which is faster: a or c?
    C. If each dot represents 1 second how long does it
       take "C" to go 15 m?
       (Remember that dot 1 is really time 0.)
    D. Find the speed of object C.

a.

b.

c.
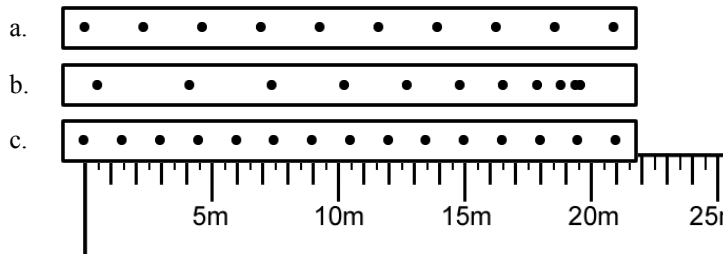
13) Use the figure at the right to figure out how fast the car is going.

0:03.0   0:00.0

Constant Speed