A-Day: Due Wed., Sept 5 (Assigned: 8/31)
B-Day: Due Thurs., Sept 6 (Assigned: 9/4)

Linear Motion 3

Safety Contracts are now overdue—get them in!!!!

1) A) Given $MA = \frac{F_{out}}{F_{in}}$ solve for "F_{in}".

B) Given $v_f = v_i + at$ solve for "a".

$\Delta = final - initial$
$\Delta x = x_f - x_i$
$v = \frac{\Delta x}{t} \qquad S = \frac{D}{T}$
$a = \frac{\Delta v}{t} = \frac{v_f - v_i}{t}$
$y = mx + b \qquad m = \frac{\Delta y}{\Delta x}$

2) *Write the information on the right on your equation sheet.*
3) *Write the following on your variable list.*

	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 verti. distance

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

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

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

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

8) 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 $\Delta v = v_f - v_i$.

9) 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.
Variables: Equation: Solve:

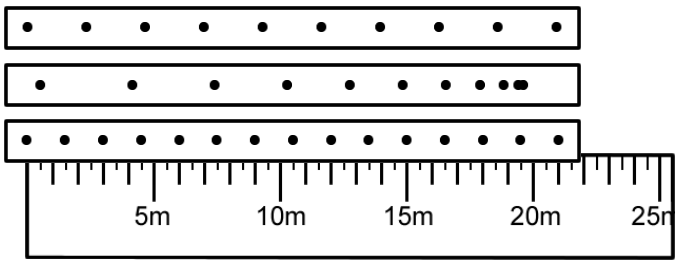
10) An object is moving 45 m/s ***to the right***. After 7 seconds it is moving right at 10 m/s. Find acceleration.
Variables: Equation: Solve:

More questions on back

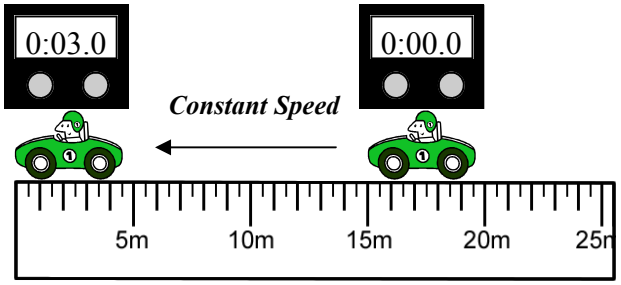
So, using the your answers from the previous 2 questions:

11) An object is moving to the left and speeding up.
   A) Is velocity positive or negative?
   B) Is acceleration positive or negative?
12) An object is moving to the right and slowing down.
   A) Is velocity positive or negative?
   B) Is acceleration positive or negative?
13) An object is moving to the right and speeding up.
   A) Is velocity positive or negative?
   B) Is acceleration positive or negative?
14) 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?

15) 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?
   D. Find the speed of object C. (*Use the steps.)*



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

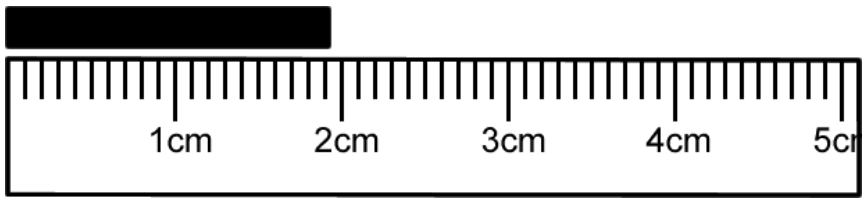


17) A) _____ cm = 1 m. B) 18 cents = _____ dollars.

   C) 6 cents = _____ dollars

   D) So, 25 cm = _____ m E) 5.6 cm = _____ m

   F) How many meters is the following line?



From the previous bellwork:

18) Which organisms are more closely related: two that have the same class or two that have the same genus?

19) Which are we more alike: a clam or a tree? Why?

20) Which of these four organisms are most alike? (Can you guess what they are?)
   A. Ursus maritimus B. Ailuropoda melanoleuca
   C. Ursus arctos D. Melursus ursinus