A-day: Due Fri., Aug 28
B-day: Due Mon., Aug 31

2009 Physics Basics 2

1. *If you didn't get both sides of your Lab Safety and Class Rules signed—get it done.*
2. *Bring a calculator to class.*

Scientific Notation:
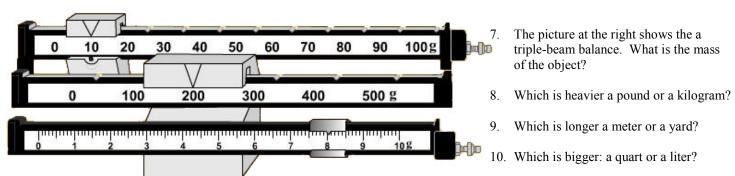3. Write the following numbers in scientific notation.
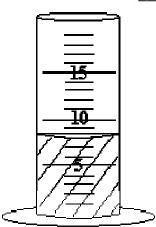   A. 540,800 =   B. 0.000802 =

From the Measuring Lab. (There are Study Helps available AND the lab is still in the back of Mr. Murray's room.)
4. A. Measure the length of the gray object in mm.
   (Be sure to estimate between the marks.)

   B. Give the length in cm.

   C. Give the length in meters.

1cm   2cm

5. A. Which was hotter: the wool
      blanket or the metal?
   B. Which felt colder?
   C. Why?

6. What did the wool blanket/metal and the black cylinder/soup can teach you?

0   10   20   30   40   50   60   70   80   90   100g

0   100   200   300   400   500 g

0   1   2   3   4   5   6   7   8   9   10g

7. The picture at the right shows the a
   triple-beam balance. What is the mass
   of the object?

8. Which is heavier a pound or a kilogram?

9. Which is longer a meter or a yard?

10. Which is bigger: a quart or a liter?

11. How much water is in the graduated cylinder at the left?

15

10

5

From the "Metrics" Notes: (*You can use the decimal way to convert.*)
12. A. How many meters in a megameter?   B. How many centimeters in a meter?
13. Convert 435 centimeters to meters.

14. Convert 1500 μm (micrometers) to centimeters.

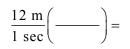15. Convert 4,500 meters to kilometers. ?

Simplify the fractions given. (*Reduce the fraction instead of multiplying the top and bottom
Remember that you can do multiplication and division in any order.*)

A. $\dfrac{6}{15}\left(\dfrac{5}{2}\right) =$ B. $\dfrac{4m}{sec}\left(\dfrac{sec}{2}\right) =$

From the "Conversion" Notes: (*Yes, I know it's hard to believe, but if you follow the notes exactly and study the examples
you will be able to do this yourself.*)

16. If you are asked to convert 12 m/s to m/min.
    A. Are you trying to change meters (m) or sec?
    B. I have started the conversion for you. Finish here:

   $$\dfrac{12 \text{ m}}{1 \text{ sec}}\left(\underline{\hspace{2cm}}\right) =$$

17. A. Convert 1.8 miles to feet.

3.3 ft = 1 m	5280 ft = 1 mi
12 in = 1 ft	2.54 cm = 1 in.
I assume you know about seconds, mins, etc	

B. Convert 35 m/sec to ft/sec.

You can use the "How to do the Math" notes if you need it.

18. Given $S = \dfrac{D}{T}$ A. Which letter or letters are in the multiplied position?
B. Which letter or letters are in the divided position?
C. Solve for D. (Move the letter around until you have D = something.)

19. If $2(3) + 4 = 10$ This means 2 times 3 then add 4 = 10.   I am going to try to help you better understand the math. At the end of each of the following steps, the two sides must still be equal.

A. Move the 4 to the other side, then 2(3) = _____

B. Then move the 3 to the other side. 2 =

20. Using the same logic: if $v_f = v_i + at$, what does a = ? (solve for a)

There are notes (Linear Equations) Study Helps, and tutorials available. There is no excuse for not getting this.

21. Use the graph at the right to answer the following:
A. Calculate the slope of the line.

C. What is the y-intercept for this line?

D. What is the y-axis (vertical) variable for this graph?

E. What is the x-axis (horizontal) variable for this graph?

F. Put all of the above into the linear equation.

Velocity vs. Time

(graph: Velocity (m/s) vertical axis 0 to 100, Time (sec) horizontal axis 0 to 16; straight line from (0,20) to (16,100))

G. Using the linear equation you just found, when will the object be moving 115 m/sec?