Due Thurs., Aug 25

2011 PreAP Linear Motion 3

1. Which is more precise: a graduated cylinder or a beaker? Why?

2. Define accuracy and precision.

3. How many sig figs are in the following measurements?
   A. 300,000,000 m/s
   B. * 25.030° C
   C. 0.006 070° C
   D. 1.004 J
   E. * $1.305\ 20 \times 10^{6}$ Hz
   F. 25.00 m/s

4. Using the numbers from the problem above, how many sig figs would the answer have? (*Don't do the calculation, just give the # of sig figs for the answer.)*
   a. * A × F would have ____ sig figs.
   b. B ÷ C would have ____ sig figs.

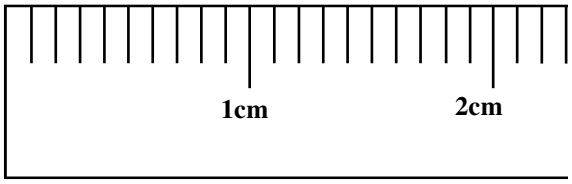
5. Give your answer with the correct # of sig figs. (*Hint: remember your rounding rules.)*
   A. 0.98695 – 0.1210 =
   B. $1.30 \div 2.7899 \times 10^{-3} =$

6. Three people measure three horizontal distances: 5.4 m; 12.56 cm; 34.1 mm.
   A. * Convert all of the numbers into the same units WITHOUT scientific notation.

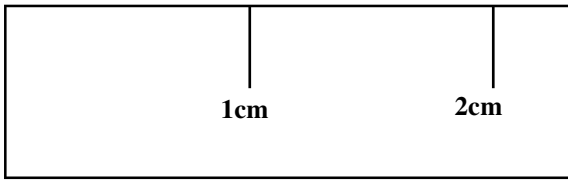
   B. What is the total distance (add them), giving your answer with the correct number of significant figures.

7. Measure the following grey objects with the correct number of sig figs. Make sure you estimate between the gradations.

Measurement =



Measurement =



8. Convert the following, using the procedures from the notes and HW#2:
   A. * 4,506,400 nm to km

   B. * 120 mph to m/s

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

9. A. Calculate the slope (with units) between 0 and 1 sec. *Label it on the graph at point A.*

   B. Calculate the slope between 2 and 4 sec. Label it at B. (*Remember to use Δy/Δx, not y/x.)*

   C. Calculate the slope between 4 and 6 sec. Label it at C.

   D. Calculate the slope between 6 and 8 sec. Label it at D.

   E. So, how did the slope of the line change?

   You should see that the object is moving and that the slope you just found is the speed or velocity of the object.

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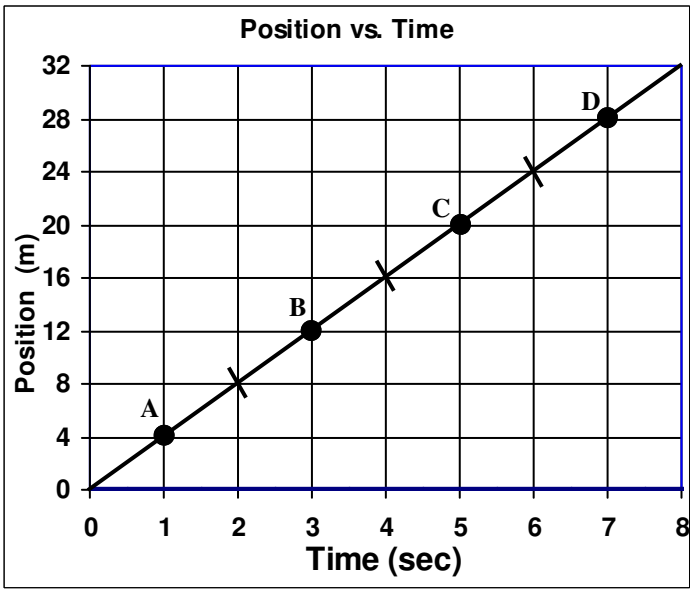
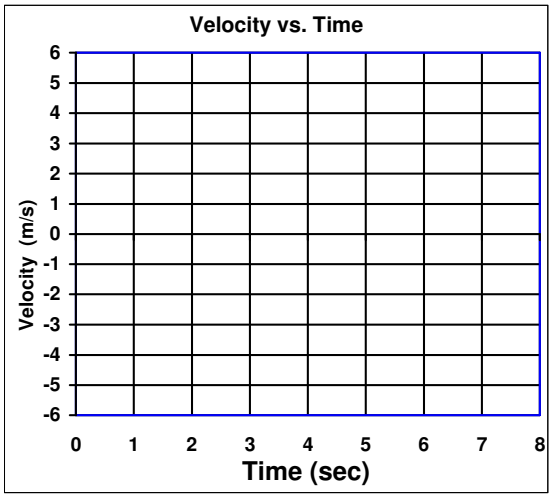


F. For each of the velocities (slopes) you found on the position graph put dots on the velocity graph at the right. (*Put dots at 1 sec, 3 sec, 5 sec, etc*).

G. Connect the dots to make a line on the velocity graph.

H. Notice that a constant sloped line on a position vs. time graph becomes what kind of line on a velocity vs. time graph?

I. Transfer the velocity graph to the acceleration vs. time graph below.



10. For the velocity vs. time graph,
    A. Which is the dependent variable?
    B. Which is the independent variable?