

CHECK THE WEBSITE AT 5PM. MY ANSWERS WILL BE THERE

Review #2
 East, H.S. ©AEM/s+ry
 visit <http://gonost.weebly.com>



Name _____
 Date _____
 Come for assistance and cheerful encouragement after school Tues, Thurs, and every day at lunch

1. What day is the test? Friday, Oct 22 Are there re-takes? No Is it open notes? NO
 Can you use your own non-graphing calculator? YES

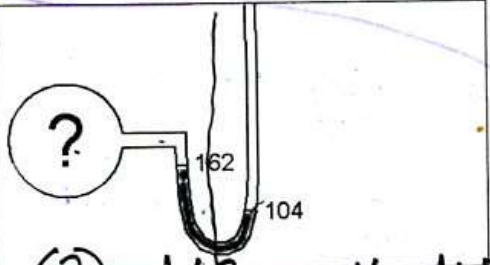
THE FOLLOWING NUMBERS WILL ALWAYS BE GIVEN TO YOU AND DON'T NEED TO BE MEMORIZED:

2. Why do barometers contain mercury, rather than water or another fluid. *If water they would be thirty feet tall*
 3. There are many correct answers to the following question. Name a place on Earth where the ambient pressure is usually more than in Madison. *Boston, Los Angeles have more air, therefore more pressure.*
 4. Name a place on Earth where the ambient pressure is usually less than in Madison. *Denver*
 5. Name and draw the device we use to measure atmospheric pressure. Label the part of it that is usually 760. mmHg when at sea level. *mt. Everest*



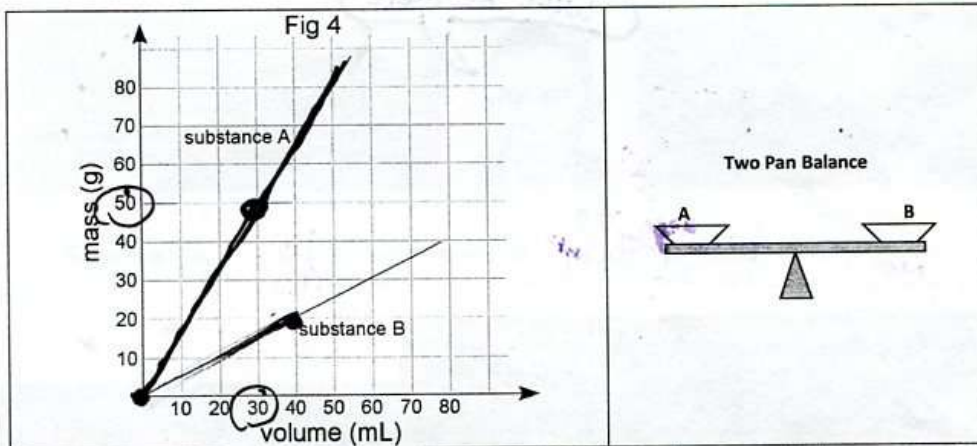
In Figure 4 below a graph shows the relationship between mass and volume for two substances. Answer the questions about these two substances.

6. The diagram at right shows a manometer connected to a flask. The mercury levels are measured in mm. The pressure in the room is 745 mm Hg. Determine the pressure of the gas in the flask. Show work.



$$\begin{aligned}
 (?) + 162 &= 104 + \text{AMBIENT} \\
 ? + 162 &= 104 + 745 \\
 ? &= 687 \text{ mmHg}
 \end{aligned}$$

7. Convert 33 kelvins to °C.
 $33 - 273 = -240^\circ\text{C}$
 8. Convert 100 °C to kelvins.
 $100 + 273 = 373\text{K}$
 9. Convert -100 °C to kelvins.
 $-100 + 273 = 173\text{K}$



- a) You have built a simple two-pan balance shown above to compare the masses of substances A and B. What would happen to the balance if you put equal masses of A and B in the two pans? Equal volumes of A and B in the two pans? Explain your reasoning.

In first case It won't move; it will stay equal.
 In second case Substance "A" will tilt the pan down because it's heavy.

- b) Find the slope of the line for both A and B using correct units. State the physical meaning of the slope for each substance.

$$\frac{\Delta y}{\Delta x} = \frac{50-0}{30-0} = 1.67 \frac{\text{g}}{\text{mL}} \quad \frac{\Delta y}{\Delta x} = \frac{20-0}{40-0} = 0.5 \frac{\text{g}}{\text{mL}}$$

It's the density of each substance

- c) If you put 10.0 mL of A in one balance pan, what mass of B would you need in the other pan to make it balance? Explain your reasoning.

Strategy find mass of A: $10.0 \text{ mL} \times \left(\frac{1.67 \text{ g}}{1 \text{ mL}} \right) = 16.7 \text{ grams of B}$

- d) If you put 35.0 mL of B in one balance pan, what volume of A would you need in the other pan to make it balance? Explain your reasoning.

Find mass of B. $35 \text{ mL B} \times \left(\frac{0.5 \text{ g}}{1 \text{ mL}} \right) = 17.5 \text{ grams of B}$
 Find Volume of A. Mass must be $17.5 \text{ grams} \times \left(\frac{1 \text{ mL}}{1.67 \text{ g}} \right) = 10.5 \text{ mL}$

- e) Water has a density of 1.00 g/mL. Sketch the line representing water onto the graph in Figure 4.

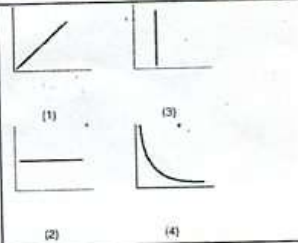
SKIP

- f) Determine whether substance A and B will sink or float when placed in a bucket of water.

SKIP

A: sink float B: sink float (circle correct response)

10. If two variables are directly related they will look like graph number 1 *inversely*
11. If two variables are ~~directly~~ *inversely* related they will look like graph number 4
12. A graph of pressure vs number of gas molecules would look like graph number 1



13. When temperature increases, what else increases?

*Kelvins are a measure of kinetic energy.
Doubling Kelvins, doubles kinetic energy*

14. What temperature is absolute zero in Kelvins? 0 In degrees Celsius?

-273

15. Which will double the kinetic energy of a block of aluminum, going from 300 °C to 600 °C or going from 300K to 600K.

- a. neither
b. doubling the Celsius
c. doubling the kelvins
d. both

16. If you know that the freezing point of pure titanium is 1668 °C, what do you know about the melting point? 1668 °C is the melting point

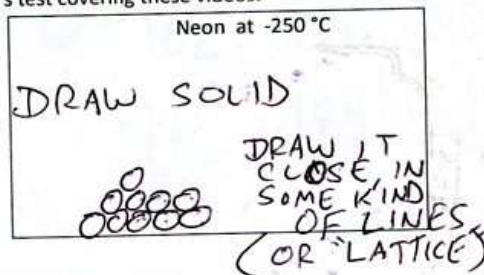
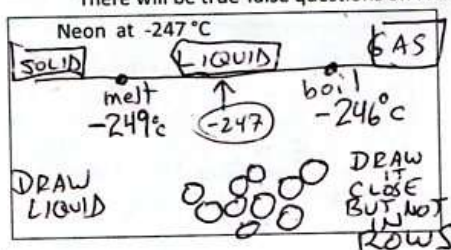
17. If a beachcomber finds one copper penny every 355 minutes, and copper pennies have a mass of 2.48 grams, how many grams of copper will the beachcomber find in 7.25 hours?

$$7.25 \text{ hours} \times \left(\frac{60 \text{ min}}{1 \text{ hrs}}\right) \times \left(\frac{1 \text{ Penny}}{355 \text{ min}}\right) \times \left(\frac{2.48 \text{ grams}}{1 \text{ Penny}}\right) = 3.04 \text{ grams}$$

You may find the following information useful.

silicon mp = 1414 °C bp = 3265 °C
neon mp = -249 °C bp = -246 °C (note the negative)
gallium mp = 30 °C bp = 2400 °C

18. Draw ten particles of each substance at the indicated temperature. Use what you learned in the computer lab and in our cartoon videos (you may re-view these cartoons at the class website). There will be true-false questions on Friday's test covering these videos:



WATER

