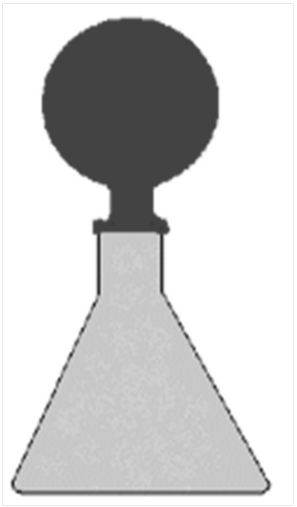
Review Lab #2

name: _____



This lab is long and filled with review. It will count 50 points (2 points per problem) but only for 20 minutes of lab time. It will affect your grade more than a regular lab.

The experiment part is great fun, and great math. The rest is just thinking. Hurry. Goggles on please. Do all work NEATLY, on loose leaf paper, and only in proper order! (there is no Thermochemistry practice in this lab)

When you have a tummy ache you might take Alka-Seltzer brand medicine to neutralize the acid in your stomach. Stomach acid is very strong, we'll use the same kind of acid, but use a weaker concentration. Alka Seltzer's main ingredient is sodium hydrogen carbonate. When combined with hydrochloric acid, the products are water, sodium chloride and carbon dioxide gas. Fill in the data table as you go.

A	carefully add acid into flask	~30 mL
B	empty balloon mass in grams	
C	put 2 Alka Seltzer into the balloon (broken up) mass in grams	
D	Mass of just tablets (C - B =)	
E	Mass of system: acid flask with balloon attached in grams	
F	After reaction, cut hole in balloon, mass of system with no CO_2	
G	Mass of missing CO_2 (E - F =)	

25 Questions for <u>after</u> you have cleaned up.

1. Write the WORD equation for the reaction between the acid and base.
2. Write the Balanced Chemical Equation for this reaction, with ALL PHASES.
3. How many grams of CO_2 formed?
4. Calculate the number of grams of sodium hydrogen carbonate that were in the Alka-Seltzer, assume 95% pure.
5. Calculate the percent composition by mass of sodium in sodium hydrogen carbonate.
6. How many grams of sodium are in the two tablets of Alka Seltzer?
7. If you have 137.9 grams of $NaHCO_3$ (and sufficient acid to react) how many grams of $CO_{2(G)}$ would form?

8. How many molecules of CO_2 would form in question 7 just above?
9. Write the complete Law of Conservation of Mass (AKA Law of Conservation of Matter) in proper English.

10. The chemical formula for chlorophyll is: $C_{55}H_{72}MgN_4O_5$ What is the molar mass of chlorophyll? Calculate the percent composition by mass of carbon in chlorophyll too.
11. Balance the chemical reaction <u>with phases</u> $Ca_{(S)} + Na_2CrO_{4(AQ)} \rightarrow$
12. What kind of chemical reaction is question number 11?
13. skip this one

14. Rewrite this statement (filling in all of the blanks) The _____ replaces the _____ in solution, while the _____ is the spectator ion in the reaction #11.
15. Write the ground state electron configuration for an atom of krypton. Now write an excited state electron configuration for an atom of krypton
16. If you were to excite this potassium by heating it up, it would give off spectra of a unique color. Explain how refractive lenses would let you observe potassium's spectra lines. Clearly explain <u>when</u> the spectra is produced, and why potassium's spectra is different than either: sodium spectra, or carbon dioxide spectra.
17. Which liquid on table H has the strongest intermolecular attractions at 90 kPa? <u>Explain</u> how you know.
18. Which liquid on table H has the highest vapor pressure at 60°C? Explain how you know that!
19. At 20 kPa + 65°C, which of the compounds on table H are still in the liquid phase, which are gases?
20. There are three isotopes of a new atom called Vestallium. Each is listed with its naturally occurring abundance by percent. Ve-123 makes up 59.85%. Ve-124 makes up 37.81%. The rest is Ve-125. What's the average weighted atomic mass of this make believe element? ROUND to "five SF".

21. How many protons, neutrons and electrons are in the <u>most common isotope</u> of indium?
22. Properly name these compounds: $(NH_4)_2CrO_4$ $Al(CN)_3$ $NaClO$ $Pd_3(PO_4)_4$
23. Properly name these compounds: CS_2 SF_6 NI_3 CBr_4
24. Convert 799.0 mm Hg into kilo-Pascals.
25. At standard pressure and 875 Kelvin, what phase is magnesium and what phase is sodium?
26. You find 546 g of an metal; it's volume is 81.74 cm^3. What is the NAME of this metal? (show the math too).

This lab has no conclusion and you don't even need a cover page. Make sure that your work is done neatly, use lots of pages, so I can easily read and see what you are thinking. <u>Leave me room to write comments</u>.

Significant figures are called that because they are important and they count. There is to be no fixing this once it's graded.

You MAY NOT skip this lab due to an absence, you will get a zero if you do not turn it in. You can make this up during your lunch if you miss class.