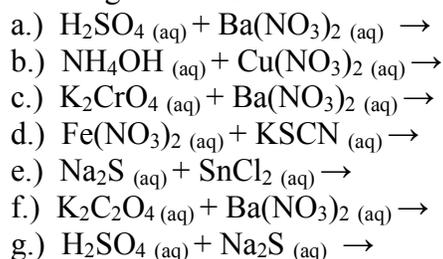


## FS/07 Chem 2 Midterm Review Questions:

- (Zinc)** For the following data set (6.1, 7.2, 6.5, 4.9, 5.3, 5.9) find the mean (average), the standard deviation estimate, the confidence interval for a single value at 90% and the confidence interval for the mean at 90% where  $t = 2.015$ .
- (Zinc)** For a cylinder plated in chromium, determine the thickness of the coating. The density of chromium is  $7.19 \text{ g/cm}^3$ . The initial mass was 7.797 g. After the removal of the chromium coating, the final mass was 5.640 g. The height was 13 cm and the diameter was 6 cm. The equation for the surface area of a cylinder is  $SA_{\text{cylinder}} = 2(\pi r^2) + 2\pi rh$ . Find the volume of the coating, the surface area of the coating, and the thickness of the coating.
- (E.F.)** The initial mass of magnesium is 0.706 g. The weight of the crucible is 15.562g. The magnesium is heated in the crucible. After a combustion reaction occurs the final weight of the new magnesium oxide compound in the crucible is 16.732g. Find the mass of the new magnesium oxide compound. Find the mass of the oxygen in the new compound. Find the mass percent of each. Find the formula weights for  $\text{MgO}$ ,  $\text{MgO}_2$  and  $\text{Mg}_2\text{O}$  and the mass percent of Mg and O in each compound.
- (T.M.)** A mixture is known to contain the four compounds in the table. A.) Draw a flow chart to show the steps that you would use to separate the following compounds. B.) The initial mass was 5.025g. The resulting masses were benzoic acid = 1.760g,  $\text{Mg}(\text{OH})_2 = 0.754\text{g}$ ,  $\text{Na}_2\text{SO}_4 = 1.005\text{g}$ , and  $\text{Zn}(\text{OH})_2 = 1.256\text{g}$ . Calculate the percent recovery of each component and the total percent recovery.

	Cold water	Hot water	3M HCl	3M NaOH
benzoic acid	no	yes	no	yes
$\text{Mg}(\text{OH})_2$	no	no	yes	no
$\text{Na}_2\text{SO}_4$	yes	yes	yes	yes
$\text{Zn}(\text{OH})_2$	no	no	yes	yes

- (13 TT)** Balance and complete the overall reactions, then give the net ionic reactions for each of the following reactions:



- (D.A.)** Unit conversions.

- We have a measured mass of mercury (2.00g) and a density of mercury (13.6g/ml). Solve for the volume in liters.
- How many seconds did it take you to read Lord of the Rings, if it took you 3.5 weeks to read it. (Presume that the 3.5 weeks is averaged out over 6 months, thus the time spent reading was 3.5 weeks.)
- Find the mass of 1.25 moles of  $\text{C}_4\text{H}_{10}$ .
- Determine the percent composition of  $\text{C}_4\text{H}_{10}$ .