**Learning how to calculate equilibrium constants for various acid-base reactions**
**Do these problems in your homework notebook.**

1) Would a solution of the following salts be acidic, basic, or neutral. Justify your answer in each case:
   a) $K_2CO_3$
   b) $NH_4Cl$
   c) $(NH_4)_2CO_3$
   d) $NaCl$
   e) $NaHCO_3$
   f) $CsCN$
   g) $MgHCO_3$
   h) $LiNO_3$
   i) $FeI_3$

2) Using your textbook, explain how $FeCl_3$ could be acidic.
3) Will a solution of nitrous acid completely react with potassium hydroxide? To answer this question, write down the reactions sequentially as we did in class and add them together. Then using the Ka's and Kb's for the reactions, calculate the K for the overall reaction.
4) If weak acids can react completely with a strong base, then why are the called weak?
5) What is the equilibrium constant for the reaction between sodium fluoride and hydrochloric acid?
6) If Elizabeth mixes solutions of sodium acetate and ammonium chloride, will she smell a significant amount of ammonia gas? Prove your answer with an equilibrium calculation.