1. Identify the acid and base in the following chemical reactions:

    a. $CH_5P + C_4H_6O_2 \rightarrow CH_6P^+ + C_4H_5O_2^-$
    b. $Si_2H_2O_5 + C_8H_{18}BaO_2 \rightarrow Si_2HO_5^- + C_8H_{19}BaO_2^+$
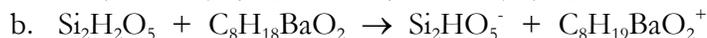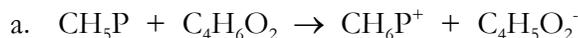
2. HI is a strong enough acid that it will make H_2O act as a base. What is the chemical reaction between HI and H_2O?

3. Determine the reaction that occurs between the following chemicals:

    a. HCl and NH_3
    b. H_2CrO_4 and $Al(OH)_3$
    c. H_3PO_4 and NaOH
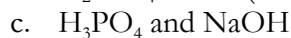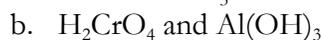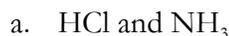
4. What volume of a 0.75-M solution of HCl would be required to neutralize 250.0 mL of a 0.010-M solution of $Ca(OH)_2$?

5. A student needs to neutralize 550.0 mL of a 5.6-M H_2SO_4 solution. How many grams of $Al(OH)_3$ should be used?

6. 115.0 mL of a solution of $HClO_3$ of unknown concentration is titrated with a 2.16-M solution of NaOH. If it takes 7.18 mL of NaOH to reach the endpoint, what is the concentration of the $HClO_3$?

7. A 1.34-M solution of H_2SO_4 is used to titrate 15.0 mL of a solution of KOH. If it takes 17.8 mL of acid to reach the endpoint, what is the concentration of the base?

8. Concentrated acetic acid is 17.4 M. How would you make 750.0 mL of a 1.5-M acetic acid solution from concentrated acetic acid?

9. A chemist makes 50.0 mL of an acetic acid solution with a concentration of 5.0 M. A student wants to use that to make a 1.5-M solution. What volume of 1.5-M solution can he make if he uses all of the original solution?

10. A chemistry student takes 50.0 mL of a NaOH solution and dilutes it so it now has a volume of 250 mL. He then titrates that 250-mL solution to find it is 1.7 M. What was the concentration of the original, 50.0-mL solution?