Acid-Base Review Worksheet - CHEMISTRY Name: _____ Per: ____

Complete the following. Show <u>all</u> of your work for any calculations. Box or circle your answer.

1. Compare and contrast the following:
   a. Acid properties and base properties

   b. Arrhenius acid and base.

   c. Bronsted-Lowry acid and base

   d. Conjugate acid and conjugate base

   e. Monoprotic acid and polyprotic acid

   f. Binary acid and ternary acid

   g. Strong acid and weak acid (Include a list of strong acids)

   h. Strong base and weak base (include a list of strong bases)

6. Identify the acid/base pairs (use BA, BB, ca and cb):

a. $CH_3COOH + H_2O \leftrightarrow H_3O^+ + CH_3COO^-$

b. $H_2O + CO_3^{2-} \leftrightarrow HCO_3^- + OH^-$

7. What are the pH values for the following? Determine if the solution is acidic or basic.

a. $[H^+] = 2.4 \times 10^{-6}$ M

b. 9.1×10^{-9} M HCl

8. Calculate the $[H^+]$ for the following.

a. pH = 13.20

b. pH = 6.45

9. **Calculate the molarity for each of substance specified in the following problems**.

   a. 25.5 mL of 0.75 M hydrochloric acid is used to titrate 10.0 mL of calcium hydroxide. What is the concentration (M) of the base? **$2HCl + Ca(OH)_2 \rightarrow CaCl_2 + 2H_2O$**

   b. Determine the concentration (M) of 15 mL of nitric acid (HNO_3) that is titrated with 10.5 mL of 2.5 M NaOH.

10. What would you expect the pH to be at the equivalence point for the following titrations:

   a. strong acid-strong base _____ b. strong acid-weak base _____ c. weak acid-strong base _____

11. Complete the following statements.

   a. The process used to determine the concentration of an unknown solution is called _____.

   b. A reaction where an acid and a base react to form salt and water is called a _____ reaction.

   c. A substance that can act as both an acid and a base is called a(n) _____ substance.

   d. A hydrogen ion and a water molecule form a _____ ion. The formula is _____.

   e. The equilibrium (ion product) constant of water has a symbol of _____ and a value of _____.

   f. The _____ has values of 0-14 and tells us whether a substance is an acid or a base.

   g. The _____ is reached when the moles of H^+ and moles of OH^- are equal.

   h. The _____ is reached when the indicator changes color during a titration.