

# Chapter 19 WS

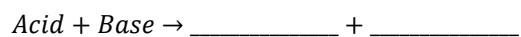
## A/B Strength, Neutralization, & Salts

Name: \_\_\_\_\_

Period: \_\_\_\_\_ Date: \_\_\_\_\_

- 1) When talking about solutions, what do the words “strong” and “weak” actually represent?  
Strong = \_\_\_\_\_ Weak = \_\_\_\_\_
- 2) What is the generic formula for the acid dissociation constant ( $K_a$ ) for the generic acid HA?
- 3) Acids with a large  $K_a$  are considered \_\_\_\_\_ acids because they are \_\_\_\_\_ ionized, and acids with a small  $K_a$  are \_\_\_\_\_ acids because they are \_\_\_\_\_ ionized.
- 4) What is the generic formula for the base dissociation constant ( $K_b$ ) for the following base?
- 5) Bases with a \_\_\_\_\_  $K_b$  are considered \_\_\_\_\_ bases because they are highly ionized, and bases with a \_\_\_\_\_  $K_b$  are \_\_\_\_\_ because they are slightly ionized.
- 6) What would be the  $K_a$  or  $K_b$  for the following acids if the following are equilibrium concentrations?
  - a.  $H_2CO_3 \rightarrow H^+ + HCO_3^-$   
 $[H_2CO_3] = 2.00M, [H^+] = 9.80 \times 10^{-6}, [HCO_3^-] = 9.80 \times 10^{-6}$
  - b.  $H_2S \rightarrow H^+ + HS^-$   
 $[H_2S] = 8.25M, [H^+] = 9.08 \times 10^{-4}M, [HS^-] = 9.08 \times 10^{-4}M$
  - c.  $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$   
 $[NH_3] = 0.250M, [NH_4^+] = 2.12 \times 10^{-3}M, [H^+] = 2.12 \times 10^{-3}M$
  - d.  $H_2NNH_2 + H_2O \rightarrow H_2NNH_3^+ + OH^-$   
 $[H_2NNH_2] = 0.120M, [H_2NNH_3^+] = 8.76 \times 10^{-4}M, [OH^-] = 8.76 \times 10^{-4}M$

7) What are the products of acid/base reactions?



8) What is the equivalence point of a titration?

9) What is the end point of a titration?

10) What is the formula for calculating titrations?

11) What is the normality of the following acids and bases?

a. 2.0 M NaOH

c. .5 M Ca(OH)<sub>2</sub>

b. 1.0 M H<sub>3</sub>PO<sub>4</sub>

d. 1.5 M H<sub>2</sub>SO<sub>4</sub>

12) Calculate the missing part of each of the following titrations:

a. 25 mL of 1.0 M H<sub>2</sub>SO<sub>4</sub> is titrated with 40 mL of NaOH. What is the concentration of the NaOH?

b. 3.0 L of Sulfuric acid is titrated with 1.0 L of 1.0 M Al(OH)<sub>3</sub>. What is the concentration of the acid?

c. 10. mL of 0.50 M HCl titrates 50. mL of an Al(OH)<sub>3</sub> solution. What molarity is the base?

d. 7.5 L of a 1.0 tetra-protic acid is titrated by a 3.0 M KOH solution. What volume of base is needed?

13) In some instances, adding a salt to water will turn the solution into an acid or a base. There are 4 basic rules for predicting the acidity, basicity, or neutrality of a solution when a salt is added... what are they?

a.

b.

c.

d.

