

# Acids/Bases Worksheet

acids Bases and Buffers Worksheet1\_07.doc

Name \_\_\_\_\_

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

1. Given a .0004M solution of perchloric acid determine:

a) pH

b) pOH

c)  $[H_3O^+]$

d)  $[OH^-]$

e) How many perchlorate ions would there be in 35.0mL of this solution?

2. Determine the conjugate acids for the following species:

$NO_2^-$

$NH_3$

$CO_3^{2-}$

$PO_4^{3-}$

3. Determine the pH of a solution formed from diluting a 15.0mL sample of .025M nitric acid to 750.mL

4. Determine the hydroxide ion concentration for the solution formed in question 3 above.

5. Calculate the hydronium and hydroxide ion concentrations for the following:

a. tomato juice; pH = 5

b. seawater; pOH = 6.15

6. What mass of potassium hydroxide is required to produce 2.00L of a solution that has a pOH of 4.5?

7. What is the final pH of a solution made from combining 55.0mL of a .0025M  $HNO_3$  solution with 26.0mL of a .0085M  $HNO_3$  solution?

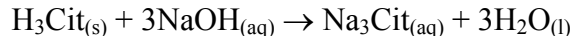
8. Which solution will have a higher pH, a .005M formic acid solution or a .005M carbonic acid solution (use your book as reference). Explain.

9. Calculate the  $K_b$  value for a weak base that is known to hydrolyze 2.00% in a 1.00M solution.

10. What is the pH of a solution in which .25g of strontium hydroxide is dissolved in enough water to produce 1500.mL of solution?

11. How much water would need to be *added* to 250.mL of a solution with a pH of 5.6 to bring the pH to 6.0?

12. Citric acid, abbreviated H<sub>3</sub>Cit, gives Kool-Aid its tart taste. If 36.10mL of 0.293M NaOH neutralizes a 0.677g sample of citric acid, what is the molar mass of citric acid?



13. Determine what acid or base is formed when the following anhydrides are placed in water.

- a. CaO
- b. SO<sub>3</sub>
- c. CO<sub>2</sub>
- d. K<sub>2</sub>O

14. What was the pH of the initial solution of hydrobromic acid if a 10.0mL sample of that solution that has been diluted with water to 85.0mL has a pH of 6.2?

15. Determine the pOH of a .02M solution of ammonia, NH<sub>3</sub>.

16. Write the chemical equations showing the double dissociation of the diprotic acid, sulfuric acid. Be sure to use single or double arrows where required.