Acids and Bases

Name_____ Date___/___/___ Pd____

1. Choose **two** properties of acids and **three** properties of bases.

| Acid | Base |
|---|---|
| | |
| | |
| | |

2. Tell the conjugate acid of the following bases (pay attention to charges)

| | |
|---|---|
| $OH^-$ | |
| $HPO_4^{2-}$ | |

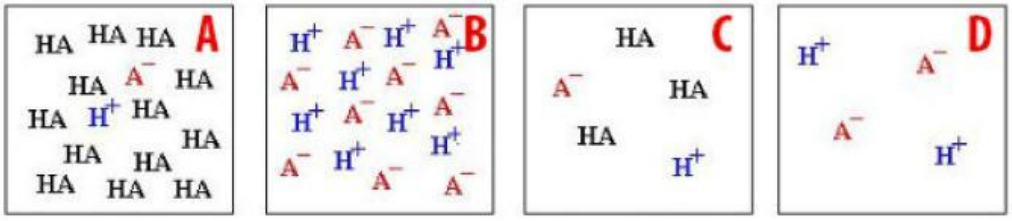
3. Tell the conjugate base of the following acids (pay attention to charges)

| | |
|---|---|
| $H_2O$ | |
| HBr | |

4. Label the acid, base, conjugate acid, conjugate base in the following equations.

$H_2O + HC_2H_3O_3 \rightarrow H_3O^+ + C_2H_3O_2^-$ $H_2O + NO_2^- \rightarrow OH^- + HNO_2$

5. Label the following from these options: Concentrated strong acid, dilute strong acid, concentrated weak acid, dilute weak acid




6. Calculate the $[H_3O^+]$ or the $[OH^-]$ for the following solutions also state whether the solution is acidic, basic or neutral: $[H^+][OH^-] = 1x10^{-14}$

| | $[H_3O^+]$ | $[OH^-]$ | Acid, Base, Neutral |
|---|---|---|---|
| a | $1x10^{-10}M$ | | |
| b | | $1x10^{-12}M$ | |

7. What is the pH of the solutions listed in question 6?

| | |
|---|---|
| a | |
| b | |

8. What is the pOH of the solutions listed in question 6?

| | |
|---|---|
| a | |
| b | |

9. What is the concentration of $H_3O^+$ ions in solutions with the following pH or pOH?

| | $[H_3O^+]$ |
|---|---|
| pH = 6.5 | |
| pOH = 8.5 | |

10. Write the balanced formula equations for the following acid-base neutralization reactions.
    a. nitric acid and baruim hydroxide

    b. hydrobromic acid and calcium hydroxide

    d. sulfuric acid and potassium hydroxide

11. What do indicators do during a titration?

12. Solve the following titration problems
    a. If 43.33mL of 0.1M potassium hydroxide solution is needed to completely neutralize 20.0mL of nitric acid, what is the concentration (molarity) of the nitric acid?

b. If 17mL of 0.35M NaOH was used to completely neutralize 34mL of sulfuric acid, what is the concentration of the sulfuric acid?