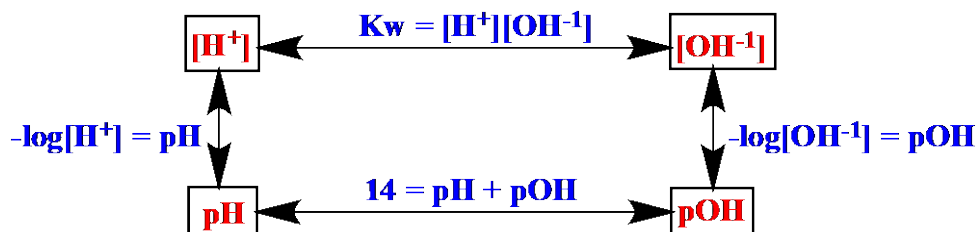


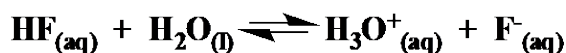
Acid/Base Video 1 Review Sheet

Description of Acid/Base Video 1, "Acid/Base Basics":

What is an acid and base, demonstrate autoionization of water to develop the pH scale, introduce K_w to explore proton and hydroxide concentrations, examine stabilities of conjugate bases to correlate acid strength, demonstrate the relationships between pH, pOH, $[H^+]$, and $[OH^-]$.



- 1) Given the $[OH^-] = 1.21 \times 10^{-9} \text{ M}$, please calculate the pH.
- 2) Given a 0.10M HNO_3 solution (strong acid), please calculate pH, pOH, $[H^+]$, and $[OH^-]$
- 3) Given a 0.18M $NaOH$ solution (strong Base), please calculate pH, pOH, $[H^+]$, and $[OH^-]$:
- 4) Please identify the acid, base, conjugate acid, and conjugate base as well as the acid-conjugate base and base-conjugate acid pairs for the following equilibrium:



Circle the correct underlined word(s) that makes the statement correct:

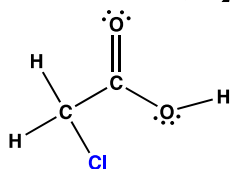
- 5) A strong / weak conjugate base is produced when a stable conjugate base is formed.
- 6) A(n) stable / unstable conjugate base is formed when a weak acid is dissolved within water.
- 7) A conjugate base low / high in energy is produced when the strong acid HCl is dissociated.
- 8) A conjugate acid high in energy / conjugate base high in energy is produced when acetic acid (a weak acid) dissociates.

TRUE or FALSE: Circle T or F

- 9) If the pH is equal to 4.5 then the proton concentration is less than the hydroxide concentration. T or F
- 10) If the pOH is equal to 2 then the solution is acidic. T or F

- 11) The pH of orange juice is 4. If a solution of vinegar is added with a pH of 4.5 then the pH of the final solution is 8.5. **T or F**
- 12) If the concentration of protons is equal to the concentration of hydroxide ions then the solution should have a pH of approximately 0.0. **T or F**
- 13) If the concentration of protons is less than the concentration of hydroxide ions then the solution should have a pH less than 7.0. **T or F**
- 14) If the concentration of hydroxide ions is slightly less than the concentration of hydronium ions then the solution should have a pH of approximately 6. **T or F**
- 15) When a basic solution is neutralized the pH goes down to 7.0. **T or F**
- 16) An Arrhenius acid is considered to be the proton donor and an Arrhenius base is the proton acceptor. **T or F**
- 17) By definition a weak acid is only partially dissociated due to the fact that the conjugate base is low in energy and reactive. **T or F**
- 18) The reason a strong acid is only partially dissociated is because the conjugate base is low in energy and unreactive.
- 19) When a solution that contains Cyanide (CN^{-1}) reacts with liquid water the conjugate acid has the molecular formula HCN. **T or F**
- 20) Define a strong and weak acid.
- 21) Define a strong and weak base.
- 22) Which is the stronger acid? Why?

Chloroacetic Acid ($\text{CH}_2\text{ClCO}_2\text{H}$)



Dichloroacetic Acid ($\text{CHCl}_2\text{CO}_2\text{H}$)

