Final Exam Review Chapters 16-17
Honors Chemistry

1. What are 3 properties of acids?
   low pH
   $[H_3O^+] > 1\times10^{-7}$ M
   sour taste
   produce H^+ in water
2. What are 3 properties of bases?
   high pH
   $[OH^-] > 1\times10^{-7}$ M
   bitter taste
   slippery feel
   produce OH^- in water
3. What is the conjugate base of HNO_3?

   NO_3^-

4. Write an equation is which NH_3 acts as a Bronsted Lowery base in water.

   $NH_3 + H_2O \rightleftharpoons NH_4^+ + OH^-$

5. What is the conjugate base of
   a. HNO_3 NO_3^-
   b. HPO_4^{2-} PO_4^{3-}
6. Which base is stronger in the previous question?

   PO_4^{3-} b/c weaker acid

7. Identify two Bronstead-Lowery acids and 2 Bronstead-Lowery bases in the following equation
   $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$

   NH_3 & OH^-

8. Write a neutralization reaction with hydrobromic acid and magnesium hydroxide.

   $2HBr + Mg(OH)_2 \rightarrow 2H_2O + MgBr_2$

9. What is the pH of a 1.3×10^{-4}M solution of HCl (strong acid)?
   $[H_3O^+] = 1.3\times10^{-4}$ M
   $-\log 1.3\times10^{-4}$
   3.89

10. What are the $[H_3O^+]$ and $[OH^-]$ of a solution with pOH=11.8?

$10^{-11.8} = [OH^-] = 1.5 \times 10^{-12} \approx 2 \times 10^{-12}\ M$

$[H_3O^+] = 6.3 \times 10^{-3} \approx 6 \times 10^{-3}\ M$

11. What is the pOH of a solution with a hydronium concentration of 3.4×10^{-3}M ?

$-\log 3.4 \times 10^{-3} = 2.47 = pH$

$pOH = 14 - 2.47 = 11.53$

12. If 23.4mL of 0.932M NaOH is used to titrate 27.2mL of HCl, what is the concentration of HCl?

$(23.4)(.932) = (27.2)(M_2)$

$M_2 = .802\ M$

<u>Study these review sheets and your old tests and you should be ready for the exam!!!</u>
<u>I will be available for help after your exam on Monday from 12:30-1:30ish.</u>