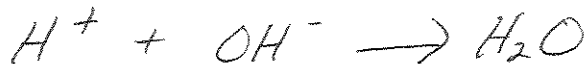
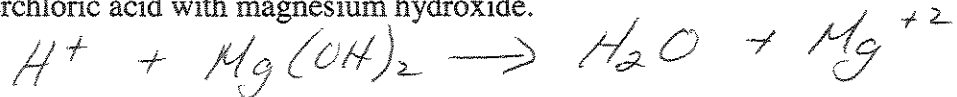


5. Write the net ionic equations for the reactions that occur when the following are mixed.

b. Sulfuric acid and sodium hydroxide



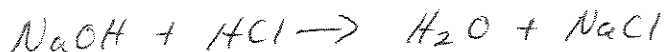
c. Perchloric acid with magnesium hydroxide.



d. Nitrous (not nitric) acid and barium hydroxide



6. A solution is prepared by dissolving 57.0g of NaOH in 250 mL of 1.00 M HCl. Will the final solution be acidic, basic, or neutral? Calculate the concentrations of all the ions present in the solution after the reaction has occurred. Assume no volume change on addition of NaOH.



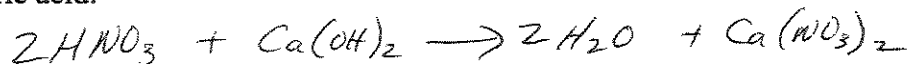
$$\overset{NaOH}{57g / 1mole} = 1.425 \text{ moles}$$

$$\overset{HCl}{1mole / .25L} = 0.25 \text{ moles}$$

	Na ⁺	OH ⁻	H ⁺	Cl ⁻
I	1.425	1.425	.25	.25
C	∅	-.25	-.25	∅
E	1.425	1.175	∅	.25
Z	1.425 M	4.7 M	∅	1 M

Total Vol. = 25 L

7. What volume of 0.500 M calcium hydroxide is required to neutralize 45.00 mL of 0.100 M nitric acid.



$$\frac{1 \text{ Mole } HNO_3}{.045 L} \times \frac{1 \text{ mole } Ca(OH)_2}{2 \text{ moles } HNO_3} \times 1 L = 0.0045 L = 4.5 \text{ mL}$$

$$M_1 V_1 = M_2 V_2$$

$$(.5) V_1 = (.1)(45)$$

$$V_1 \left(\frac{1}{2}\right) = 4.5 \text{ mL}$$

The concentration of a certain sodium hydroxide solution was determined by using the solution to titrate a sample of KHP. KHP is a weak acid with one acidic hydrogen and a molar mass of 204.22 g/mol. In the titration, 24.54 mL of the NaOH solution was required to react with 0.256 g KHP. Calculate the molarity of the sodium hydroxide.



$$\frac{0.256g \text{ KHP}}{204.22 g} \times \frac{1 \text{ mole KHP}}{1 \text{ mole KHP}} \times \frac{1 \text{ mole NaOH}}{1 \text{ mole KHP}} \times 1 L = 0.05116 M$$