Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_ **Nomenclature & Reactions: Acid/Base**

**Naming Acid Rules**

* **H**Element= **hydro***element***ic** acid (ex. HCl= hydrogen + chlor**ine**= **hydro***chlor***ic** acid )
* **H**Polyatomic ion ending in **ate** = polyatomicion**ic** acid (ex. HClO3 = hydrogen + chlor**ate** = chlor**ic** acid)
* **H**Polyatomic ion ending in **ite** = polyatomicion**ous**acid (ex. HClO2 =hydrogen + chlor**ite**= chlor**ous** acid)

**Naming Base Rules**

* Metal**OH =** metal name hydroxide

**Practice A**: Label below as an acid, base, ionic, or covalent compound. Name/Determine the chemical formula of each.

1. NaOH
2. Hydrofluoric acid
3. H2SO4
4. Calcium hydroxide
5. water
6. Cu(OH)2
7. phosphoric acid
8. ammonia
9. ammonium hydroxide
10. NaHCO3

**Neutralization Reaction:**

Strong acid (aq) + Strong Base(aq) 🡺 Salt(aq) + HOH (l)

Acid that completely breaks apart + base that completely breaks apart 🡺 ionic compound + water

Acid that ionizes + base that dissociates 🡺 metal-nonmetal + water

HCl (aq) + NaOH(aq) 🡺 NaCl (aq) + HOH (l)

1. HBr
2. H2S
3. Li2S
4. Carbonic acid
5. KOH
6. PbSO4
7. Nitric acid
8. Hydroiodic acid
9. HC2H3O2
10. CH3COOH

**Practice B:** Label below as decomposition (d), double replacement (dr), single replacement (sr), synthesis (syn), combustion (combus), or neutralization (a/b). Balance each of the reactions and name each reactant and product.

1. \_\_\_\_\_\_ Mg + \_\_\_\_\_\_\_\_Fe2O3 🡺 \_\_\_\_\_\_Fe + \_\_\_\_\_\_\_\_MgO
2. \_\_\_\_\_\_C2H4 + \_\_\_\_\_\_\_\_ O2 🡺 \_\_\_\_\_\_\_CO2 + \_\_\_\_\_\_\_\_ H2O
3. \_\_\_\_\_\_\_\_\_HClO3 + \_\_\_\_\_\_\_\_\_Ba(OH)2🡺 \_\_\_\_\_\_\_\_HOH + \_\_\_\_\_\_Ba(ClO3)2
4. \_\_\_\_\_\_PbSO4 🡺 \_\_\_\_\_\_\_\_ PbSO3 + \_\_\_\_\_\_O2
5. \_\_\_\_\_\_\_\_H2O + \_\_\_\_\_\_\_\_SO3 🡺 \_\_\_\_\_\_\_\_\_H2SO4
6. \_\_\_\_\_\_\_\_\_NH4OH + \_\_\_\_\_\_\_\_\_ H2SO4 🡺 \_\_\_\_\_\_\_\_(NH4)2SO4 + \_\_\_\_\_\_\_ HOH

**Practice C:** Predict the products in each neutralization reaction. Balance each of the reactions, name each reactant and product, and label each as an acid, base, salt, or water.

1. H2CO3 (aq) + RbOH (aq) 🡺
2. HBr (aq) + Ba(OH)2 (aq) 🡺
3. HNO3 (aq) + Ca(OH)2(aq) 🡺

**At the neutralization point, the number of moles of acid = number of moles of base; therefore**

**MacidVacid =MbaseVbase**

**Practice D:** Calculate

1. How much 2.0M HCl will it take to neutralize 500 mL of 1.0M NaOH?
2. How much 4.0M HCl will it take to neutralize 250 mL of 1.5 M NaOH ?
3. 35.7 mL of 0.1MNaOH is necessary to neutralize a 50.0 mL sample of acetic acid. What is the concentration of the acetic acid?