IUPAC Nomenclature

1. Type I Binary Nomenclature

ionic: metal & nonmetal

2 atoms

- Names
  - A. write the name of the metal
  - B. write the name of the nonmetal, change its ending to -ide

Ex) $NaCl$ — sodium chloride

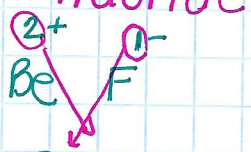
K_2S — potassium sulfide

Al_2O_3 — aluminum oxide

Ca_3N — calcium nitride

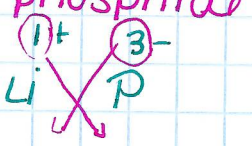
- Formulas - criss-cross method
  - A. write symbol & charge of the metal
  - B. do the same for the nonmetal
  - C. criss-cross charges, drop the +/- signs

Ex) beryllium fluoride

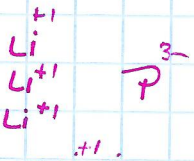


BeF_2

lithium phosphide

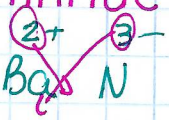


Li_3P



takes 3 Li^{+1}'s to 1 P^{3-} to make a formula

barium nitride



Ba_3N_2

calcium sulfide

2+ 2-

Ca S

CaS

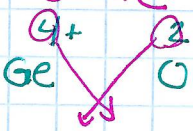
rubidium iodide

1+ 1-

Rb I

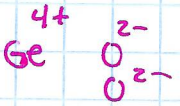
RbI

germanium oxide



Ge_2O_4 → GeO_2

must simplify if you can!



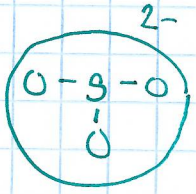
2. Type I Tertiary Nomenclature

↓ ionic

↓

metal + polyatomic ion (ion w/more than 1 atom)

Ex) sulfite SO_3^{2-}



acetate $C_2H_3O_2^{1-}$

- Names
  - A. write the name of the metal
  - B. write the name of the polyatomic ion

Ex)

K_2CO_3
potassium carbonate

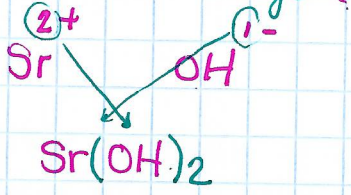
$Ca(NO_3)_2$
calcium nitrate

$GaPO_4$
gallium phosphate

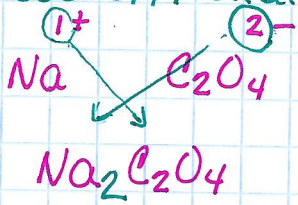
$Mg(C_2H_3O_2)_2$
magnesium acetate

- Formulas
  - A. write symbol & charge for metal
  - B. write symbol & charge for the polyatomic ion
  - C. criss-cross the charges, if you write a number after after a polyatomic ion, put the polyatomic ion in parentheses 1ST & write the crossed over number outside it.

Ex) strontium hydroxide



sodium oxalate



aluminum perchlorate

Al^{3+} ClO_4^{1-}

$Al(ClO_4)_3$

ammonium chloride

NH_4^{1+} Cl^{1-}

NH_4Cl