

## NAMES OF IONS

- To properly discuss ions and ionic compounds, we have to know how to name them!

### CATIONS

3 kinds:

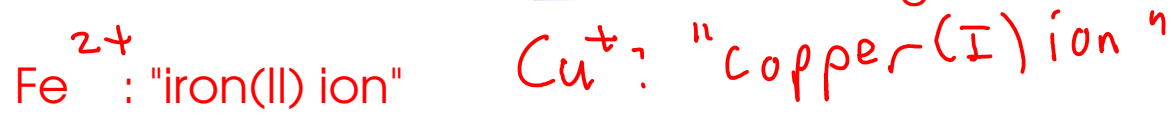
① Main group cations (metals that take only one charge when forming ions)

- The element's name is the same as the ion's name!



② Transition metal cations (from metals that can form several cations)

- The CHARGE of the cation must be given. Use a ROMAN NUMERAL after the element name to indicate charge!



③ Polyatomic cations

- Memorize list.



## 86 ANIONS

2 kinds

### 1 Main-group nonmetals

- Use the STEM NAME of the element, then add "-ide" suffix

$\text{N}^{3-}$  : "nitride" ion

$\text{P}^{3-}$  : "phosphide" ion

$\text{S}^{2-}$  : sulfide ion

$\text{O}^{2-}$  : "oxide" ion

$\text{F}^{-}$  : "fluoride" ion

### 2. Polyatomic ions

- List (see web site) (also p130 in textbook 7th ed)

$\text{C}_2\text{H}_3\text{O}_2^{-}$  : "acetate ion"

$\text{SO}_4^{2-}$  : "sulfate ion"

$\text{NO}_3^{-}$  : "nitrate ion"

$\text{SO}_3^{2-}$  "sulfite ion"

$\text{NO}_2^{-}$  : "nitrite ion"

\* Polyatomic ions ending in "-ate" and "-ite" suffixes always contain oxygen! "-ate" ions have more oxygen atoms than their "-ite" counterparts.

## NAMING IONIC COMPOUNDS

- The name of the compound is based on the name of the ions in the compound
- Cation first, anion second (drop the word "ion")

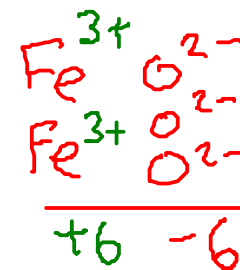
Examples:



magnesium hydroxide



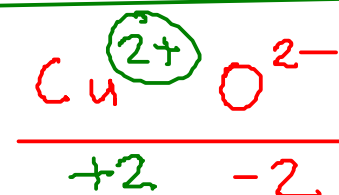
iron(III) oxide



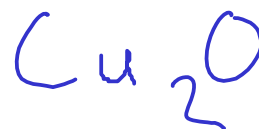
sodium sulfide



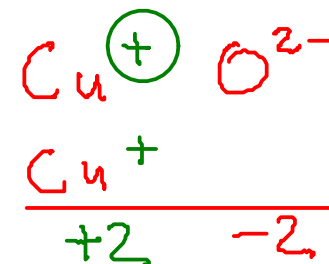
copper(II) oxide



beryllium bromide

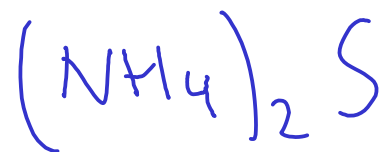


copper(I) oxide

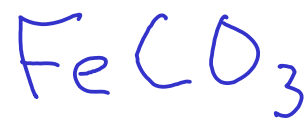


Remember to include the Roman numeral for CHARGE in the name of transition metal compounds!

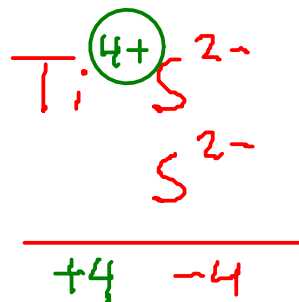
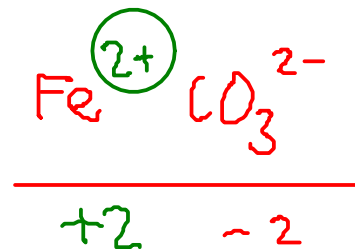
## NAMING IONIC COMPOUNDS



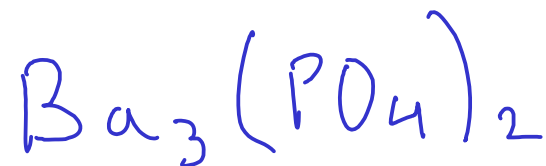
ammonium sulfide



iron(II) carbonate



titanium(IV) sulfide



barium phosphate



calcium nitrate



barium phosphide

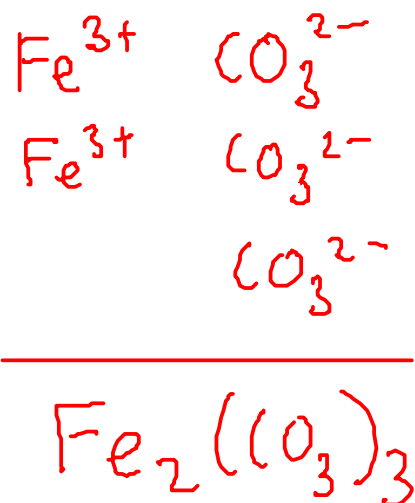
Spelling matters!

## DETERMINING THE FORMULA OF AN IONIC COMPOUND FROM THE NAME

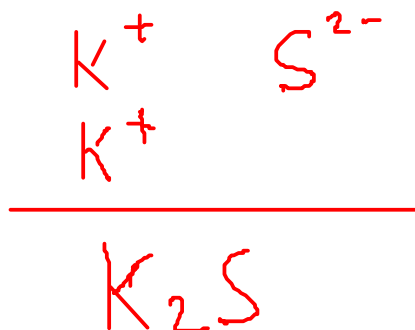
- The name of an ionic compound is made of the names of the CATION and ANION in the compound.
  - To get the FORMULA, you must figure out the SMALLEST RATIO of cation to anion that makes the charges balance out
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Examples:

iron(III) carbonate



potassium sulfide



calcium bromide

