

NAMES OF IONS

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

CATIONS

3 kinds:

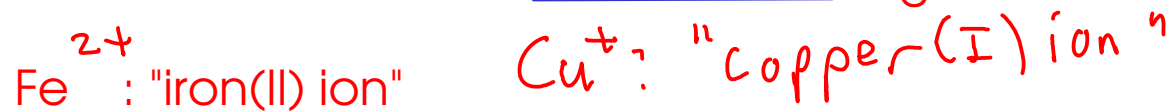
① Main group cations (metals that take only one charge when forming ions)

- 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

N^{3-} : "nitride" ion

P^{3-} : "phosphide" ion

S^{2-} : sulfide ion

O^{2-} : "oxide" ion

F^{-} : "fluoride" ion

2. Polyatomic ions

- List (see web site)

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

SO_4^{2-} : "sulfate ion"

NO_3^{-} : "nitrate ion"

SO_3^{2-} "sulfite ion"

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")

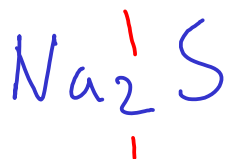
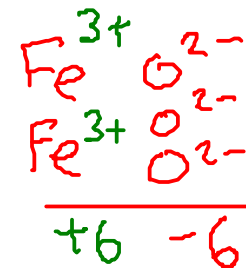
Examples:



magnesium hydroxide



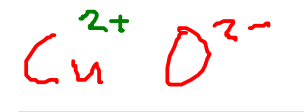
iron(III) oxide



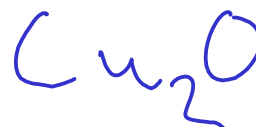
sodium sulfide



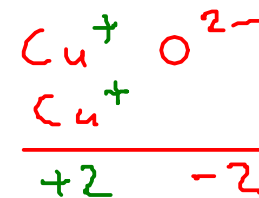
copper(II) oxide



beryllium bromide

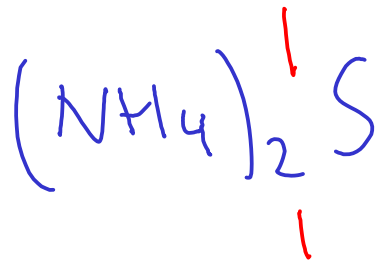


copper(I) oxide

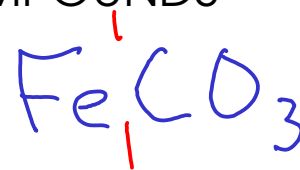


Remember to include the Roman numeral for CHARGE in the name of transition metal compounds!

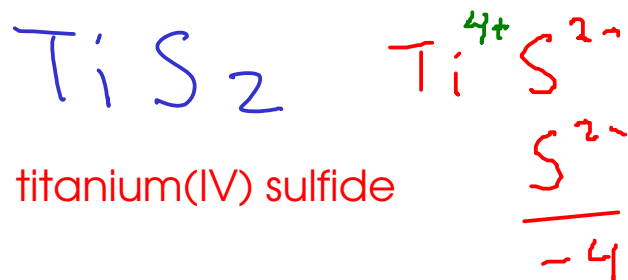
NAMING IONIC COMPOUNDS



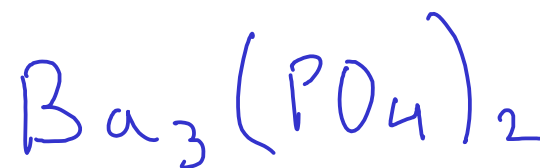
ammonium sulfide



iron(II) carbonate



titanium(IV) sulfide



barium phosphate



calcium nitrate



barium phosphide

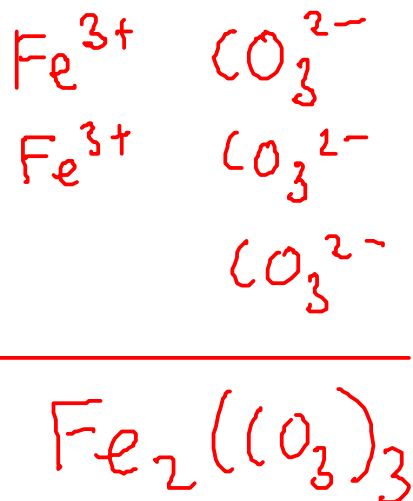
Spelling matters!

DETERMINING THE FORMULA OF AN IONIC COMPOUND FROM THE NAME

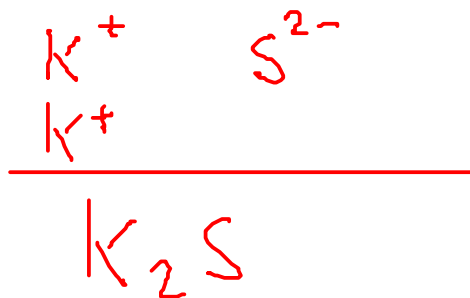
- The name of an ionic compound is made of the names of the CATION and ANION in the compound.
 - To get the FORMULA, you must figure out the SMALLEST RATIO of cation to anion that makes the charges balance out
-

Examples:

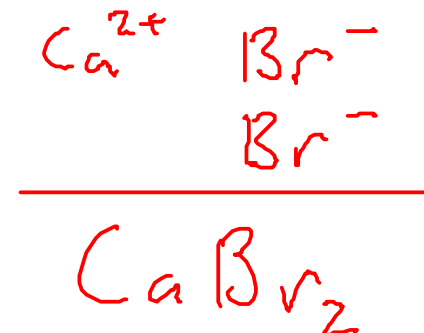
iron(III) carbonate



potassium sulfide

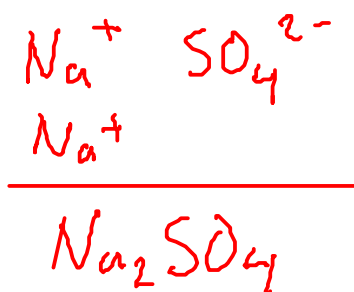


calcium bromide

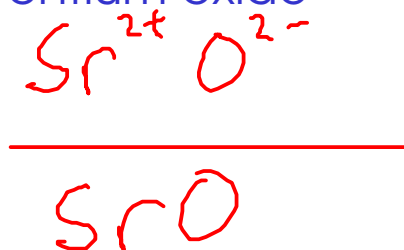


DETERMINING IONIC FORMULAS

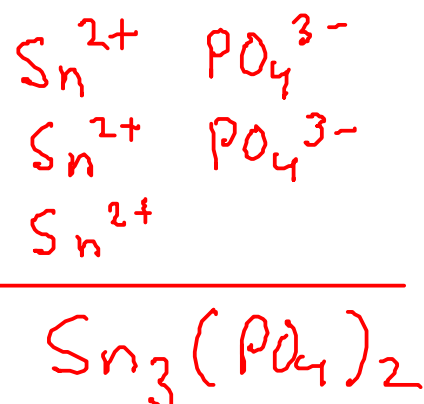
sodium sulfate



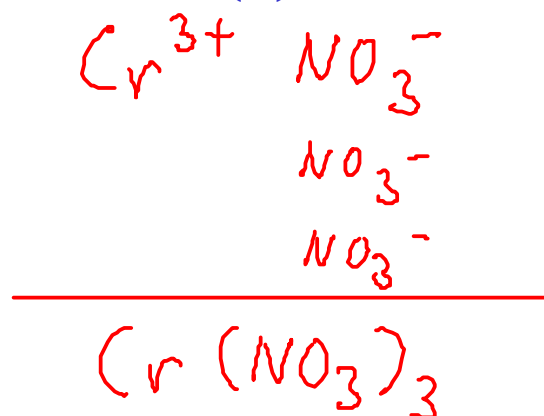
strontium oxide



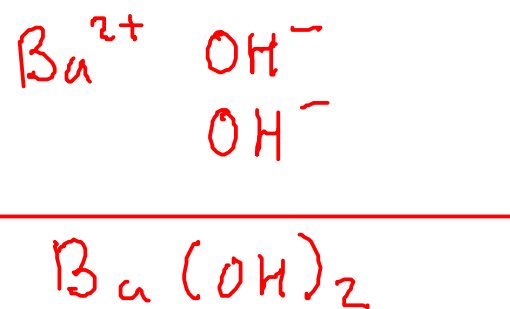
tin(II) phosphate



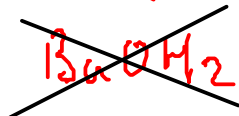
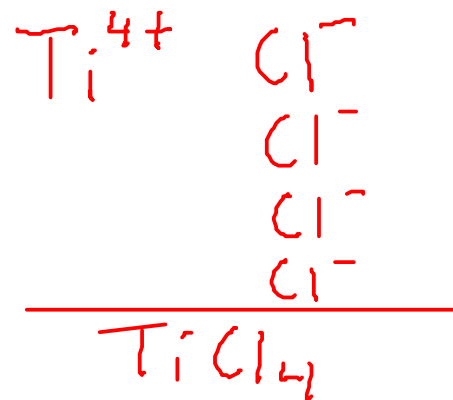
chromium(III) nitrate



barium hydroxide



titanium(IV) chloride



If your formula contains more than one polyatomic ion, you NEED to use parenthesis!