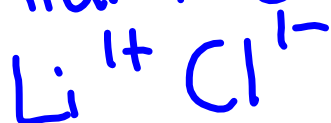


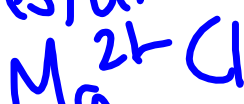
# April 24, 2019

## Multivalent Ionic Compounds

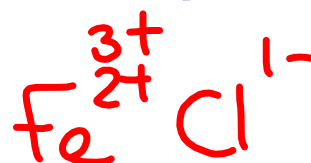
lithium chloride



magnesium chloride



magnesium phosphide



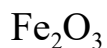
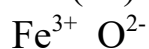
# Multi-Valent Ions

some metals have more than one charge they are called **multi-valent ions**

- these elements are found in the middle block of the periodic table i.e. Fe, Ni, Sn, Hg, Cu, Au etc (Table 2 p. 195)

When asked to write the formula the charge that is to be used is indicated in brackets with a Roman numeral

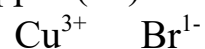
Ex. iron(III) oxide



copper (II) chloride



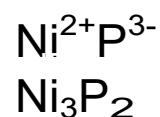
copper (III) bromide



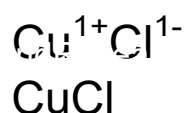
# Try These

Write the formula for each of the following:

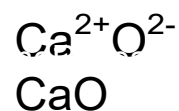
1. nickel (II) phosphide



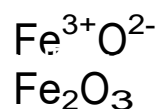
2. copper (I) chloride



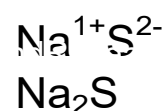
3. calcium oxide



4. Iron (III) oxide



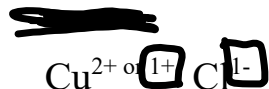
5. sodium sulfide



*Naming Ionic Compounds from Formula (multivalent ions):*

- Identify positive ion (metal) and negative ion (nonmetal)
- If metal is multivalent, determine its charge from the formula and include in name

Ex. CuCl



CaCl<sub>2</sub>  
calcium chloride

to have gotten no subscripts  $\text{Cu}^{1+}$  had to have been used if  $\text{Cu}^{2+}$  was used the formula would have been  $\text{CuCl}_2$ .

Name = copper (I) chloride

Ex.  $\text{Fe}_3\text{N}_2$   
 $\text{Fe}^{3+ \text{ or } 2+} \text{N}^{3-}$ 

to have gotten the subscript 2 on the N we used  $\text{Fe}^{2+}$

Name = iron (II) nitride

only use roman numerals for multivalent compounds if the element only has one charge there should be no brackets with roman numerals.

# Ionic Cmpds WS