

CH 105 Supplemental Instruction

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Sessions: Monday, 1:15-2:15, EB 128

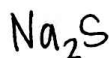
Wednesday, 3:30-4:30, EB 133

Office Hour: Thursday, 3:30-4:30, EB 242 (Academic Success Center)

* For #1, notice how ionic compounds are named.

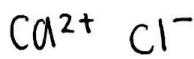
1. Write the formula for the following ionic compounds:

a. Sodium sulfide



balance the charges: to get to zero... $-2 + (2 \times +1) = 0$

b. Calcium chloride



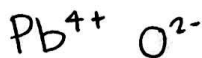
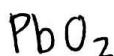
2 Cl^- are needed to balance Ca^{2+} .

c. Potassium carbonate



* carbonate is a polyatomic ion that you need to memorize. Since it is a -2 charge, you need two K^+ .

d. Lead (IV) oxide



* Roman numeral tells you the charge here. Refer to notes for use Roman numerals.

2. True or false: polyatomic ions remain intact after a chemical reaction. **You need to memorize the ones in the chart given in your notes.

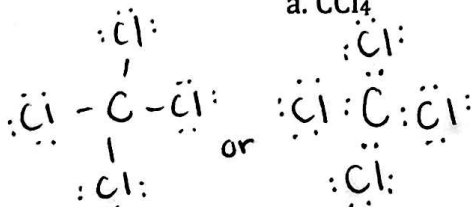
3. How is a covalent compound different from an ionic compound?

covalent compounds are ~~born~~ 2 nonmetals and share electrons, where ionic compounds involve a metal + nonmetal and "give + take" electrons.

* 1 bond line = $2e^-$

4. Write the electron dot structure for the following compounds:

a. CCl_4



C = 4 valence e^-

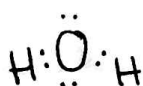
Cl = 7 valence e^- ($\times 4$) = 28 e^-

28 + 4 = 32 e^- in configuration

* make sure the elements have an octet!

Lewis dot structure

b. H_2O

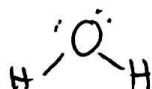


H = 1 valence e^- ($\times 2$) = 2 e^-

O = 6 valence e^- = 6 e^-

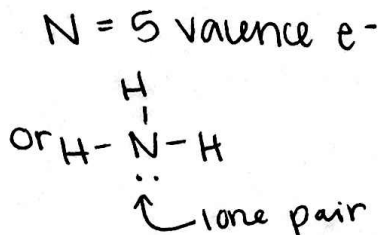
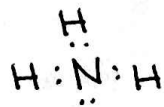
2 e^- + 6 e^- = 8 e^-

or



★ Remember, H only needs 2 e⁻!

c. NH₃

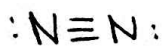


H = 1 valence e⁻ (x3) = 3 e⁻

$$5 + 3 = 8 \text{ e}^-$$

d. N₂

N = 5 valence e⁻ (x2) = 10 e⁻



★ the only way that both atoms can have an octet is by forming this triple bond.