

WS 6.3 Ionic and Covalent Formula Writing

Name: _____ p. _____

1. Ionic compounds.

Examples: MgCl_2 , NaNO_3 , Ag_2S , $\text{Fe}(\text{NO}_3)_3$, Fe_2O_3 , K_2SO_4 , Li_2CO_3 , AlPO_4 , Cu_2SO_4 , NH_4Cl

a. Ionic compounds typically contain _____.

both metals and nonmetals

only metals

only nonmetals

b. Explain how ionic compounds form from elements. What is happening with the electrons?

2. Covalent compounds (aka “molecular compounds”).

Examples: CO_2 , CO , H_2O , CCl_4 , C_8H_{18} , SO_3 , SO_2 , OF_2 , PCl_5 , NI_3 , $\text{C}_6\text{H}_{12}\text{O}_6$, NO , NO_2 , N_2O , N_2O_3 , N_2O_4 , N_2O_5

a. Covalent compounds typically contain _____.

both metals and nonmetals

only metals

only nonmetals

b. Explain how covalent compounds form from elements. What is happening with the electrons?

Prefixes!

1 = mono

6 = hexa

2 = di

7 = hepta

3 = tri

8 = octa

4 = tetra

9 = nona

5 = penta

10 = deca

3. Fill in the missing name or formula for these covalent compounds:

NO_2 _____

carbon tetraiodide _____

NO _____

CBr_2I_2 _____

P_2O_5 _____

4. Fill in the missing name or formula for these ionic compounds:

BaCl_2 _____

Al_2S_3 _____

PbO _____

Fe_2S_3 _____

ammonium sulfate _____

Tin (IV) carbonate _____

5. For each compound below, classify it as ionic or covalent, and then fill in the missing name or formula.

NCl_3 _____

SF_6 _____

AlCl_3 _____

gold (III) sulfide _____

CO _____

XeF_4 _____

CO_2 _____

Li_2O _____

NiBr_2 _____

N_2O_4 _____

SO_2 _____

sulfur trioxide _____

NI_3 _____

Iron (III) phosphide _____

B_2O_3 _____

Calcium phosphate _____

potassium peroxide _____

Si_3N_4 _____

PCl_5 _____

Pb_3N_4 _____

Calcium hydride _____

disulfur decafluoride _____

disilicon hexahydride _____

silver sulfate _____

6. Rubidium (Rb) is element #37. Rubidium ion is not on your ion sheet.

a. Based on its position on the periodic table, predict the formula (including the charge) of rubidium ion: _____

b. Write the formula for rubidium nitride: _____

c. Write the formula for rubidium carbonate: _____

7. Radium (Ra) is element #88. Radium ion is not on your ion sheet.

a. Based on its position on the periodic table, predict the formula (including the charge) of radium ion: _____

b. Write the formula for radium sulfate: _____

c. Write the formula for radium phosphate: _____

8. Write the formula for chromium (VI) ion: _____

b. Write the formula for chromium (VI) sulfide: _____

9a. Fill out: P^{-3} S^{-2} Cl^{-1} K^{+1} Ca^{+2}

number of protons: _____

number of electrons: _____

b. Which Noble Gas has the same number of electrons as each of the above ions? _____

10. List six ions that have the same number of electrons as the noble gas neon. Include 3 cations and 3 anions.
