

Practice Sheet for Test Chapter 5.1 Naming Ionic Compounds

Name _____ Date _____ Period _____ **A**

1. Comparing Ionic and Molecular Compounds

Complete the Table (answer choices suggested in *italic* in first column)

Characteristics	Ionic Compound	Molecular Compound
From element types <i>metals + nonmetals,</i> <i>or all nonmetals</i>		
Composed of <i>ions,</i> <i>or molecule</i>		
Formed by ___ electrons <i>sharing,</i> <i>or gaining and losing</i>		
Type of bonds <i>ionic,</i> <i>or covalent</i>		
Melting points usually <i>low,</i> <i>or high</i>		
Physical state at room temp. <i>Brittle crystalline solid,</i> <i>or either gas, liquid or solid</i>		
Conducts electricity <i>usually not,</i> <i>or only when melted or dissolved</i> <i>in water</i>		

2. Use the last three rows of the table and describe those general properties (**melting point**, physical **state** at room temperature, and electrical **conductivity**) of ionic compounds in a complete and logical sentence.

3. Define

Chemical formula _____

Formula unit _____

Molecular formula _____

Anion _____

Cation _____

4) True or false, correct the underlined word if false

- a) _____ Mg^{2+} is formed from its element by gaining 2 electrons
- b) _____ O^{2-} is formed from its element by gaining 2 electrons
- c) _____ S^{2-} is formed from its element by gaining 2 protons
- d) _____ The formula of an ionic compound is call molecular formula
- e) _____ $CaCl_2$ is an example of a formula unit.
- f) _____ H_2CO is an example of a formula unit.

5) Choose from cation or anion

- a) A positive ion is called _____ b) a negative ion is called _____
- c) Metals form _____s d) Nonmetals usually form _____s
- e) Mg^{2+} _____ f) O^{2-} _____
- 6) Which elements do not form ions? _____

7) What are charges for ions of main group elements (group A elements) and group B metals?

1A	2A	3A	4A	5A	6A	7A	8A	all B groups

8) Find the charges for Na _____ Be _____ O _____ N _____ Ar _____

9) Why would you never expect to find Ca_2O as a stable compound? What is the correct formula instead?

10) Monoatomic anions end with -ide.

Change the names of the following elements to the name of its anion and add the symbol with charge:

Element (symbol)	Anion symbol w/charge	Element (symbol)	Anion symbol w/charge
Hydrogen (H)		Phosphorous (P)	
Nitrogen (N)		Oxygen (O)	

11) Check which ions need to have roman numerals after their name ✓

Ca^{2+} _____ Al^{3+} _____ Sn^{4+} _____ Ni^{2+} _____ Zr^{2+} _____ S^{2-} _____ N^{3-} _____

Explain why _____

Use the last page (page 4) of your green need to know sheet and a periodic table for help to answer the following problems. (Table on polyatomic ions on last page)

Polyatomic ions

Formula	Name	Formula	Name
NO_3^-	Nitrate	SO_4^{2-}	Sulfate
OH^-	Hydroxide	CN^-	Cyanide
CO_3^{2-}	Carbonate	NH_4^+	Ammonium
PO_4^{3-}	Phosphate	NO_2^-	Nitrite

15) Complete the table below (first find charges for ions in first column if not given)

Use **roman numerals** in the name for the charge of cations that “vary”

<i>Particles</i>	Binary (b) or Ternary (t)	<i>Formula</i>	<i>Name</i>
K Br			
Sn(4+), N			
Rh(2+), O			
Li, SO_4^{2-}			
Mg CN^-			
Na PO_4^{3-}			
Na OH^-			
Al^{3+} CO_3^{2-}			
Co^{3+} CN^-			
Pt^+ OH^-			
			Platinum (I) sulfate