Name _____ Date _____ Class _____

7 IONIC AND METALLIC BONDING

Practice Problems

In your notebook, answer the following.

SECTION 7.1 IONS

1. For each element below, state (i) the number of valence electrons in the atom, (ii) the electron dot structure, and (iii) the chemical symbol(s) for the most stable ion.
   a. Ba **b.** I **c.** K

2. How many valence electrons does each of the following atoms have?
   a. gallium **b.** fluorine **c.** selenium

3. Write the electron configuration for each of the following atoms and ions.
   a. Ca **c.** Na^+ **e.** O^{2-}
   b. chlorine atom **d.** phosphide ion

4. What is the relationship between the group number of the representative elements and the number of valence electrons?

5. How many electrons will each element gain or lose in forming an ion? State whether the resulting ion is a cation or an anion.
   a. strontium **c.** tellurium **e.** bromine
   b. aluminum **d.** rubidium **f.** phosphorus

6. Give the name and symbol of the ion formed when
   a. a chlorine atom gains one electron.
   b. a potassium atom loses one electron.
   c. an oxygen atom gains two electrons.
   d. a barium atom loses two electrons.

7. How many electrons are lost or gained in forming each of the following ions?
   a. Mg^{2+} **b.** Br^- **c.** Ag^+ **d.** Fe^{3+}

8. Classify each of the following as a cation or an anion.
   a. Na^+ **c.** I^- **e.** Ca^{2+}
   b. Cu^{2+} **d.** O^{2-} **f.** Cs^+