**KEY – Chapter 7, Section 3: INVESTIGATE**



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| a) copper Cu (29)  b) sulfur S (16)  c) zinc Zn (30)  d) gold Au (79)  e) oxygen O (8)  f) carbon C (6)  g) silver Ag (47)  h) chlorine Cl (17)  i) nitrogen N (7)  j) hydrogen H (1) | k) magnesium mg (12)  l) iodine I (53)  m) iron Fe (26)  n) calcium Ca (20)  o) aluminum Al (13)  p) sodium Na (11)  q) potassium K (19)  r) lead Pb (82) |

1. a) KBr – other examples would be: LiF, LiCl, LiBr, and LiI. There are other compounds formed from group 1 and group 17 combining such as NaF, NaCl, NaBr, NaI, KF, KCl, KI, CsF, CsCl, CsBr, and CsI.

b) MgO. The alkaline earth metals can lose two electrons and will then have an ionic charge of 2+ and the group 16 family can gain two electrons and have an ionic charge of 2 -. Examples of these ion combinations are: BeO, BeS, BeSe, BeTe, MgS, MgSe, MgTe, CaO, CaS, CaSe, CaTe, SrO, SrS, SrSe, SrTe, BaO, BaS, BaSe, and BaTe. Be sure you understand that the net charge on these ionic compound is zero so we do not need to write it like Mg2O2. The two charges cancel one another out so we DO NOT write the subscripts of 2 in the formula.

1. a) CaO – calcium oxide

b) AlF3 – aluminum fluoride

c) B2O3 – boron oxide

d) Sr3N2 – strontium nitride

e) BaSe – barium selenide

1. \*\*I have posted in the Extra Help/Practice tab a chart of the most common polyatomic ions. It has their name, formula and charge.

a) potassium nitrate – KNO3

b) barium sulfate – BaSO4

c) potassium sulfate – K2SO4

d) sodium acetate – NaC2H3O2

e) (NH4)2SO4 - NH4 is ammonium – Ammonium sulfate

f) Al2(CO3)3 – Aluminum carbonate

g) LiHCO3 - Lithium hydrogen carbonate

1. These “imagined charges” are what we call ***oxidation numbers*** and they are found on some versions of the periodic table. They are included on your version in your textbook.

a) Carbon would have the oxidation number of +4 since each oxygen atom has an oxidation number of -2. Carbon does have 4 valence electrons and shares these 4 electrons with the two oxygen atoms.

b) The carbon in carbon monoxide now has the oxidation number of 2+ and only one oxygen is needed to balance it. This compound is interesting in that it does not satisfy the octet rule. Because of this, carbon monoxide is unstable and will often combine with a metal atom in order to gain stability.

c) Your answers will vary but the most common method for assigning valences is to assume that oxygen is always -2. This is generally a reliable assumption since it is almost always true.