Chemistry Name _____ Period ____
Introduction to Chemical Reactions WS

Part 1: Concept Questions

1. The symbol Δ in a chemical equation means:
   a. Heat is supplied to the reaction
   b. A catalyst is needed
   c. Yields
   d. Precipitate

2. What is a catalyst?
   a. Whole number that appears before a formula
   b. New substance formed in a chemical reaction
   c. Substance that speeds up a reaction without being used up
   d. Starting substance in a chemical reaction

3. A chemical formula written above the yield sign indicates:
   a. That a gas is formed
   b. That the substance is used as a catalyst
   c. That heat must be supplied
   d. A reversible reaction

4. In a chemical equation, where would you find the products?
   a. Left of the arrow
   b. Right of the arrow
   c. Above the arrow
   d. Below the arrow

5. The arrow can be read in all of the following ways EXCEPT
   a. Yields
   b. Gives
   c. Reacts to produce
   d. Addition

6. True or False: If you change any subscript number, the compound stays the same.
   a. True
   b. False

7. The number placed in front of a chemical symbol or formula is called a
   a. Superscript
   b. Coefficient
   c. Subscript
   d. Catalyst

8. Which of the following symbol does not match the physical state of a substance?
   a. (s) for solid
   b. (l) for liquid
   c. (g) for gas
   d. (sol) for aqueous solution

Part 2: Parts of a Chemical Equation

1. Use the following equation to answer the questions below.

$$6HCl\ (aq) + 2Al\ (s) \rightarrow 2AlCl_3\ (aq) + 3H_2(g)$$

   a. Which substances are reactants? _____

   b. Which substances are products? _____

   c. What is the largest coefficient in this reaction? _____

   d. What state of matter is aluminum chloride? _____

   e. What state of matter is not represented in this equation? _____

   f. How many chlorine atoms are in hydrochloric acid in this equation? _____

2. Use the following equation to answer the questions below.

$$Pb(NO_3)_2(aq) + 2KI(aq) \rightarrow PbI_2(s) + 2KNO_3(aq)$$

   a. Which substances are reactants? _____

   b. Which substances are products?_____

   c. What is the coefficient of potassium iodide? _____

   d. What state of matter is lead (II) nitrate? _____

   e. Which substance is shown as a solid? _____

   f. How many potassium atoms are in potassium nitrate? _____

3. Use the following equation to answer the questions below.

$$2CO(g) + 2NO(g) \xrightarrow{Rh(s)} 2CO_2(g) + N_2(g)$$

   a. How many products are in this reaction? _____

   b. What is the coefficient for carbon monoxide? _____

   c. What is the state of matter of nitrogen monoxide? _____

   d. What compound is the catalyst? _____

   e. What state of matter is the catalyst? _____

   f. What is the coefficient for nitrogen gas? _____

   g. How many oxygen atoms are in carbon dioxide in this reaction? _____

4. Use the following equation to answer the questions below.

$$CaCO_3(s) \xrightarrow{\Delta} CaO(s) + CO_2(g)$$

   a. How many reactants are in this reaction? _____

   b. What is the largest coefficient in this reaction? _____

   c. Does this reaction have a catalyst? _____

   d. Does this reaction require heat? _____

   e. What state of matter is calcium oxide? _____

   f. What compounds do calcium carbonate yield? _____