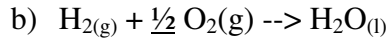


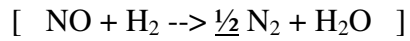
CHEM 1305 - Chapter 06 - Handout

Define the following terms; explain the following concepts, and answer the following questions:

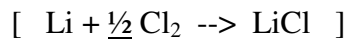
- 1) Four common 'clues' that a chemical reaction occurred:
 - a) COLOR CHANGES
 - b) PPT. FORMS
 - c) GAS EVOLVES
 - d) TEMPERATURE (HEATS UP/COOLS)
- 2) *For a chemical equation, REACTANTS are shown on the left, and PRODUCTS on the right.
- 3) *As a result of the first law of thermodynamics, chemical equations must be BALANCED.
- 4) In a chemical reaction, the number of ATOMS present in the reactants is exactly the same as the number in the reactants.
- 5) The number before one of the compounds in a chemical equation is referred to as the COEFFICIENT.
- 6) Symbols are used to indicate the physical state of reactants and products. To what do the following symbols refer:
 - a) s = SOLID
 - b) l = LIQUID
 - c) g = GAS
 - d) aq = AQUEOUS
- 7) When balancing chemical equations, COEFFICIENTS (the number in front of compounds) can be changed, but SUBSCRIPTS (the numbers in chemical formulas) can NOT.
- 8) Write the basic steps for balancing a chemical equation.
 - Verify that each compound is CHARGE NEUTRAL
 - ID "Ione" elements (balance last)
 - ID molecules which contain atoms which appear only once on each side of the equation. (Start balancing with "unique" atoms with largest subscript.
- 9) Write the balanced equation for the following described reactions, or balance the supplied equations:
 - a) $K_{(s)} + H_2O (l) \rightarrow \frac{1}{2} H_2(g) + KOH_{(aq)}$



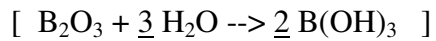
c) nitrogen monoxide gas + hydrogen gas \rightarrow nitrogen gas + water



d) lithium metal + chlorine gas \rightarrow lithium chloride



e) diboron trioxide + water \rightarrow boric acid, $\text{B}(\text{OH})_3$



f) $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow 8 \text{CO}_2 + 4 \text{H}_2\text{O} \Rightarrow \text{C}_3\text{H}_8 + 10 \text{O}_2 \rightarrow 8 \text{CO}_2 + 4 \text{H}_2\text{O}$

g) * Heating solid ammonium nitrite produces nitrogen gas and steam.

