Equations Review

Name: _____

Part 1: Supply the correct coefficients to balance the following equations (assume all formulas are correct). Then classify each reaction as either synthesis, decomposition, single replacement, double replacement or combustion.

	Type of Reaction
1) ___ NH_3 (g) + ___ HCl (g) ---> ___ NH_4Cl (l)	_____
2) ___ $Pb(NO_3)_2$ (aq) + ___ K_2CrO_4 (aq) ---> ___ $PbCrO_4$ (s) + ___ KNO_3 (aq)	_____
3) ___ Cl_2 (g) + ___ KI (aq) ---> ___ KCl (aq) + ___ I_2 (s)	_____
4) ___ C_3H_6 (g) + ___ O_2 (g) ---> ___ CO_2 (g) + ___ H_2O (g)	_____
5) ___ $Al(OH)_3$ (s) ---> ___ Al_2O_3 (s) + ___ H_2O (l)	_____
6) ___ Li (s) + ___ O_2 (g) ---> ___ Li_2O (s)	_____
7) ___ HCl (aq) + ___ Fe_2O_3 (s) ---> ___ $FeCl_3$ (aq) + ___ H_2O (l)	_____
8) ___ $MgCO_3$ (s) ---> ___ MgO (s) + ___ CO_2 (g)	_____

Part 2: Write the correct formulas for all reactants and products, then supply the necessary coefficients to balance the equations. Then classify each equation according to its reaction type.

1) Aqueous calcium iodide is mixed with aqueous mercury (II) nitrate to produce solid mercury (II) iodide and aqueous calcium nitrate.

2) Aqueous hydrogen peroxide decomposes to form liquid water and oxygen gas.

3) Solid aluminum mixed with chlorine gas produces solid aluminum chloride.

4) Manganese metal reacts with aqueous sulfuric acid (H_2SO_4) to produce aqueous manganese (II) sulfate and hydrogen gas.

5) Aqueous barium acetate reacts with aqueous sodium phosphide to produce solid barium phosphide and aqueous sodium acetate.

Part 3: Given the reactants, predict the products and balance the equation:

1) ____ Al (s) + ____ HCl (aq) -->

2) ____ C_8H_{18} (l) + ____ O_2 (g) -->

3) ___ SnO (s) -->

4) ___ $CdBr_2$ (aq) + ___ Na_2S (aq) -->

5) ___ C (s) + ___ Cl_2 (g) -->

6) ___ $CaCl_2$ (aq) + ___ Na_3PO_4 (aq) -->

7) ___ Na_2S (aq) + ____ F_2 (g) -->

8) ___ KCl (s) -->

Part 4: In the following reactions, balance the reaction and determine what element undergoes oxidation and what element undergoes reduction:

1) ___ CaO (s) --> ___ Ca (s) + ___ O_2 (g) Oxidation: _____ Reduction: _____

2) ___ Mn (s) + ___ HI (aq) --> ___ MnI_5 + ___ H_2 (g) Oxidation: _____ Reduction: _____

3) ___ $SbCl_5$ (s) --> ___ Sb (s) + ___ Cl_2 (g) Oxidation: _____ Reduction: _____

4) ___ Ba (s) + ___ $AuCl_3$ (aq) --> ___ $BaCl_2$ (aq) + ___ Au (s) Oxidation: _____ Reduction: _____

5) ___ Ag (s) + ___ S (s) --> ___ Ag_2S (s) Oxidation: _____ Reduction: _____

Part 5: Using the activity series, determine whether the reaction will occur or not. For each reaction, predict the products and balance. If no reaction occurs, write NR.

1) ___ Ca (s) + ___ HCl (aq) -->

2) ___ $Ca(NO_3)_2$ (aq) + ___ Au (s) -->

3) ___ $MgCl_2$ (aq) + ___ K (s) -->

4) ___ Zn (s) + ___ $PtBr_4$ (aq) -->

5) ___ $Co(ClO_3)_3$ (aq) + ___ Mg (s) -->

6) ___ Cu (s) + ___ $Fe(OH)_3$ (aq) -->