

**Reactions HW #1 - Synthesis and Decomposition**

Name: \_\_\_\_\_

Write out the word equations or balanced chemical equations for these 7 reactions, including phases, then indicate if they are Synthesis or Decomposition reactions in the last column.

#	If there are symbols, write the word equation, if there are words, write the balanced chemical equation with phase symbols.	Is this reaction synthesis or decomposition? <b>S or D</b>
1	$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$	
2	$\text{Fe}_2\text{S}_3 \rightarrow 2\text{Fe} + 3\text{S}$	
3	$\text{MgO} + \text{CO}_2 \rightarrow \text{MgCO}_3$	
4	copper I sulfide powder breaks down into copper and sulfur	
5	beryllium combines with oxygen to form beryllium oxide	
6	calcium reacts with nitrogen to form calcium nitride	
7	Potassium chlorate breaks down to potassium chloride & oxygen	
8	$\text{N}_{2(\text{G})} + \text{O}_{2(\text{G})} \rightarrow 2\text{NO}_{(\text{G})}$	

Reactions HW #2 - Single Replacement Reactions Name: \_\_\_\_\_

Write balanced chemical reactions for each of these, with phase symbols. If there is no reaction, Write the symbols for the reactants, an arrow and an "X". A solution means it is AQUEOUS.

1	Zinc reacts with hydrochloric acid solution	
2	Iron (II) nitrate solution plus silver metal	
3	Fluorine gas mixed with sodium bromide solution	
4	Gold (III) chloride solution with magnesium metal	
5	Copper (II) sulfate solution with silver metal	
6	Bromine liquid into ammonium iodide solution	
7	Ammonium fluoride solution with chlorine gas	
8	Lithium hydroxide solution with titanium metal	
9	Barium hydrogen carbonate solution and lithium metal	
10	Potassium sulfate solution with lead metal	
11	Aluminum metal into nickel (II) chlorate solution	

Reactions HW #3 - Double Replacement Reactions Name: \_\_\_\_\_

Write balanced equations with PHASES, which are mandatory. Use the Solubility Guidelines Table (table F). One of these is not a reaction, will you find it? If it is a “no reaction”, you will still balance the equation and indicate both products as AQ. Do not just write NO REACTION, that is not enough.

Sodium carbonate + zinc chlorate solutions react

Copper (II) sulfate + calcium chloride solutions react

Potassium hydroxide + lead (IV) nitrate solutions react

Silver hydrogen carbonate + Iron (II) bromide solutions react

Barium hydroxide + lithium sulfate solutions react

Ammonium phosphate + tin (II) acetate solutions react

Calcium chromate + sodium sulfide solutions react

Strontium acetate + lithium carbonate solutions react

Ammonium phosphate + rubidium nitrate solutions react

**Reactions HW #4 - Combustion Reactions**

Name: \_\_\_\_\_

Write as FULL SENTENCES.

1. Combustion reactions always have these 2 products...
2. Combustion reactions always combine a hydrocarbon with...
3. A hydrocarbon is a molecule which ONLY contains...
4. If octane (gasoline) burns cleanly and completely, what are the products?
5. Propane is written as  $C_3H_8$ . Write the balanced chemical equation with phases for its combustion.
  
6. Define EXOTHERMIC and ENDOTHERMIC.
  
7. Combustion reactions are always exothermic or endothermic (circle one)
8. If methane gas in your Bunsen burner does not get enough oxygen, the combustion is incomplete a different chemical reaction occurs, called incomplete combustion. Balance this word equation: Methane ( $CH_4$ ) and oxygen make solid carbon, carbon dioxide, and water.
  
9. Soot is the fine black dust that fills up chimneys everywhere is the carbon that does not get to form into  $CO_2$  during incomplete combustion. Why would increasing  $O_{2(G)}$  would eliminate soot.
  
  
10. List the other 4 kinds of chemical reactions you have learned already. Which of them is your favorite and why? Be specific or funny, it will help you remember.

**Reactions HW #5 - Reactions Review HW**

Name: \_\_\_\_\_

Write Syn, Decomp, SR, DR, or Comb in the first column to describe each reaction. Then finish the reactions, with PHASE SYMBOLS.

	Type of Reaction	Balance these carefully, with PHASES.
1		$\text{SrCl}_{2(\text{AQ})} + \text{Li}_{(\text{S})} \rightarrow$
2		$\text{C}_4\text{H}_{10(\text{G})} + \text{O}_{2(\text{G})} \rightarrow$
3		$\text{AgNO}_{3(\text{AQ})} + \text{CaCl}_{2(\text{AQ})} \rightarrow$
4		$\text{P}_{(\text{S})} + \text{Cl}_{2(\text{G})} \rightarrow \text{PCl}_{5(\text{G})}$
5		$\text{Al}_{(\text{S})} + \text{CuSO}_{4(\text{AQ})} \rightarrow$
6		$\text{Ca}(\text{OH})_{2(\text{AQ})} + \text{AlBr}_{3(\text{AQ})} \rightarrow$
7		$\text{F}_{2(\text{G})} + \text{NaCl}_{(\text{AQ})} \rightarrow$
8		$\text{SrCO}_{3(\text{S})} \rightarrow \text{SrO}_{(\text{S})} + \text{CO}_{2(\text{G})}$