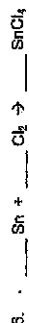
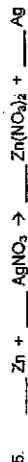
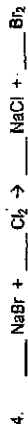
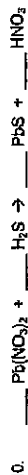
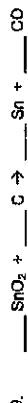
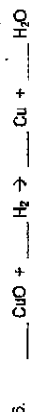
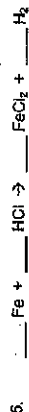
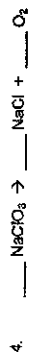
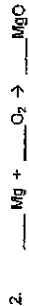


Name: _____

Chemistry: Balancing Chemical Equations

Directions: First, balance each of the chemical equations below. Then, classify each reaction as **synthesis**, **decomposition**, **single-replacement**, or **double-replacement**. To earn full credit, write the words out when classifying.

Balance the equation...



...and classify it.

Word Equations

Write the word equations below as chemical equations and balance:

- Zinc and lead (II) nitrate react to form zinc nitrate and lead.
- Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas.
- Sodium phosphate and calcium chloride react to form calcium phosphate and sodium chloride.
- Potassium metal and chlorine gas combine to form potassium chloride.
- Aluminum and hydrochloric acid react to form aluminum chloride and hydrogen gas.
- Calcium hydroxide and phosphoric acid react to form calcium phosphate and water.
- Copper and sulfuric acid react to form copper (II) sulfate and water and sulfur dioxide.
- Hydrogen gas and nitrogen monoxide react to form water and nitrogen gas.

Worksheet: Writing Equations

Write equations for the following reactions:

- 1) The reaction of ammonia with iodine to form nitrogen triiodide (NI₃) and hydrogen gas.
- 2) The combustion of propane (C₃H₈).
- 3) The incomplete combustion of propane to form CO and water.
- 4) The reaction of nitric acid with potassium hydroxide.
- 5) The reaction of copper (II) oxide with hydrogen to form copper metal and water.
- 6) The reaction of iron metal with oxygen to form iron (III) oxide.
- 7) The complete combustion of 2,2-dimethylpropane (C₅H₁₂) in oxygen.
- 8) The reaction of AlBr₃ with Mg(OH)₂.
- 9) The decomposition of hydrogen peroxide to form water and oxygen.
- 10) The reaction of ammonia with sulfuric acid.

Predicting the products of chemical reactions

Predict the products of the following reactions:

- 1) $\text{Ag} + \text{CuSO}_4 \rightarrow$ Type: _____
- 2) $\text{NaI} + \text{CaCl}_2 \rightarrow$ Type: _____
- 3) $\text{O}_2 + \text{H}_2 \rightarrow$ Type: _____
- 4) $\text{HNO}_3 + \text{Mn(OH)}_2 \rightarrow$ Type: _____
- 5) $\text{AgNO}_3 + \text{BaSO}_4 \rightarrow$ Type: _____
- 6) $\text{HCN} + \text{CuSO}_4 \rightarrow$ Type: _____
- 7) $\text{H}_2\text{O} + \text{AgI} \rightarrow$ Type: _____
- 8) $\text{HNO}_3 + \text{Fe(OH)}_3 \rightarrow$ Type: _____
- 9) $\text{LiBr} + \text{Co(SO}_3)_2 \rightarrow$ Type: _____
- 10) $\text{LiNO}_3 + \text{Ag} \rightarrow$ Type: _____

- 13) $\text{AlCl}_3 + \text{Cs} \rightarrow$ Type: _____
- 14) $\text{Al(NO}_3)_3 + \text{Ga} \rightarrow$ Type: _____
- 15) $\text{H}_2\text{SO}_4 + \text{NH}_4\text{OH} \rightarrow$ Type: _____
- 16) $\text{CH}_3\text{COOH} + \text{O}_2 \rightarrow$ Type: _____
- 17) $\text{C}_4\text{H}_8 + \text{O}_2 \rightarrow$ Type: _____
- 18) $\text{KCl} + \text{Mg(OH)}_2 \rightarrow$ Type: _____
- 19) $\text{Zn} + \text{Au(NO}_3)_2 \rightarrow$ Type: _____
- 20) $\text{KOH} + \text{H}_2\text{SO}_4 \rightarrow$ Type: _____
- 21) $\text{BaS} + \text{PtCl}_2 \rightarrow$ Type: _____