

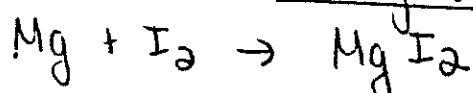
Predicting Products of Chemical Reactions

Directions: First write the names of the products on the lines provided, translate the word equation to chemical formulas, then balance. Don't forget your DIATOMICS!

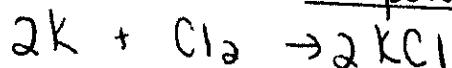
Synthesis - a chemical change in which two or more substances react to form a new single substance

Example: Iron + sulfur \rightarrow iron (II) sulfide
 $8\text{Fe} + \text{S}_8 \rightarrow 8\text{FeS}$

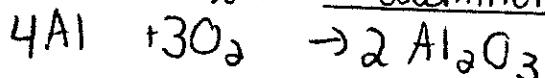
1. Magnesium + Iodine \rightarrow magnesium iodide



2. Potassium + Chlorine \rightarrow potassium chloride



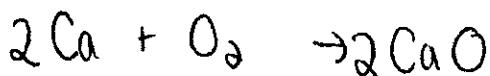
3. Aluminum + Oxygen \rightarrow aluminum oxide



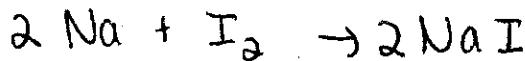
4. Lithium + Nitrogen \rightarrow lithium nitride



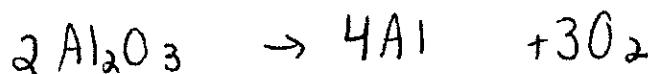
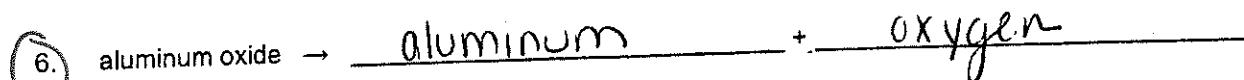
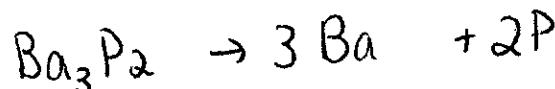
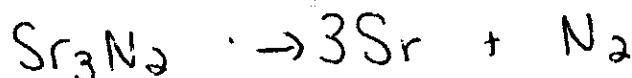
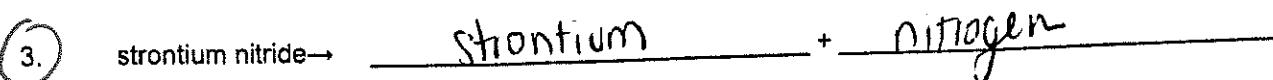
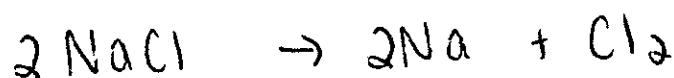
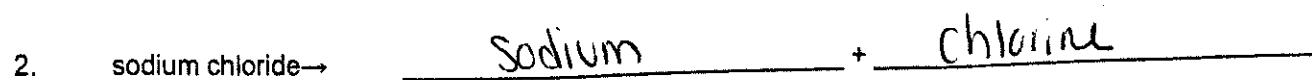
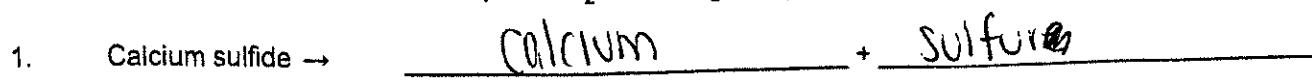
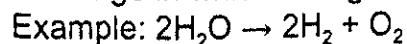
5. calcium + oxygen \rightarrow calcium oxide



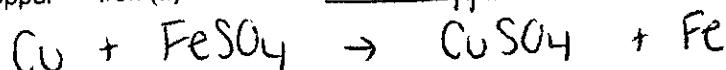
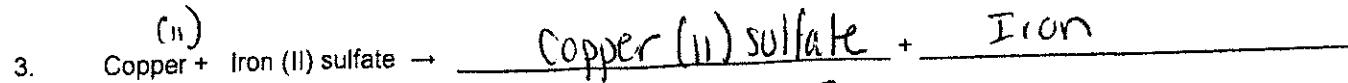
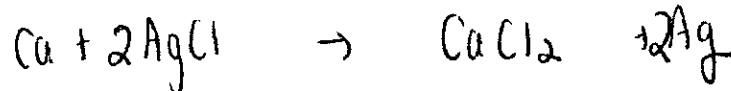
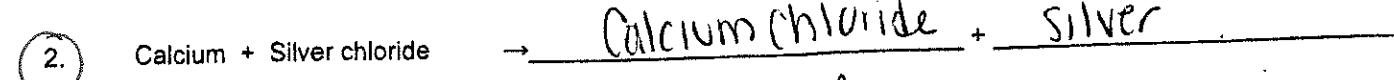
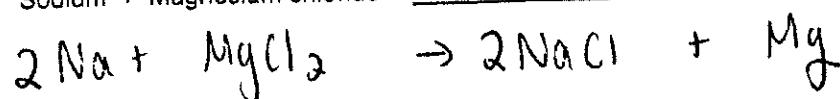
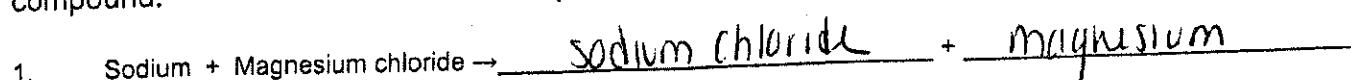
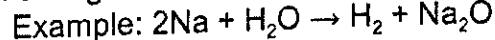
6. sodium + iodine \rightarrow sodium iodide



Decomposition- a chemical change in which a single compound breaks down into two or more simpler products.

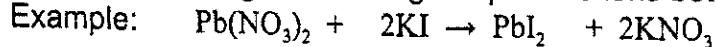


Single Replacement- a chemical change in which one element replaces a second element in a compound.



4. Sodium + hydrogen hydroxide \rightarrow sodium hydroxide + hydrogen
 $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$
5. iron (II) + Lead (II) nitrate \rightarrow Iron (II) nitrate + lead
 $\text{Fe} + \text{Pb}(\text{NO}_3)_2 \rightarrow \text{Fe}(\text{NO}_3)_2 + \text{Pb}$
6. Copper (II) + Aluminum sulfite \rightarrow Copper (II) sulfite + aluminum
 $3\text{Cu} + \text{Al}_2(\text{SO}_3)_3 \rightarrow 3\text{CuSO}_3 + 2\text{Al}$

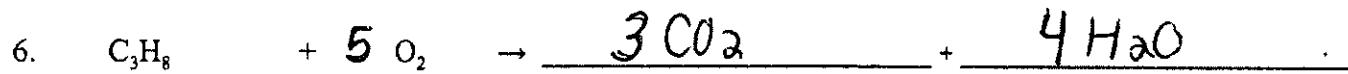
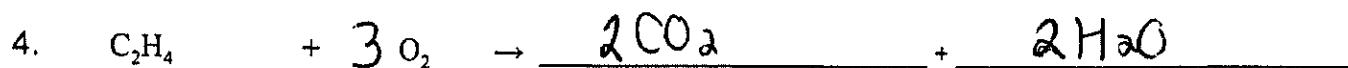
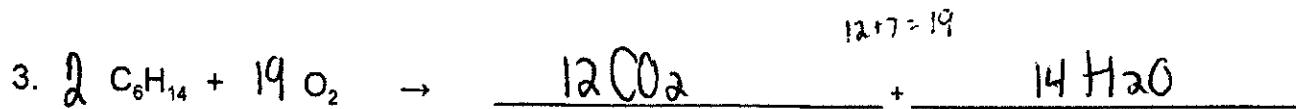
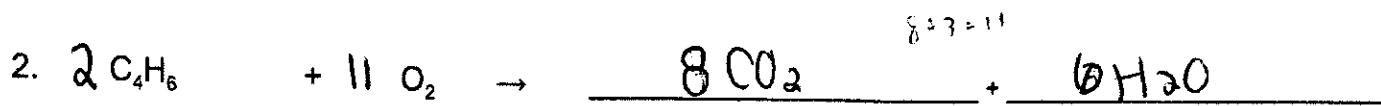
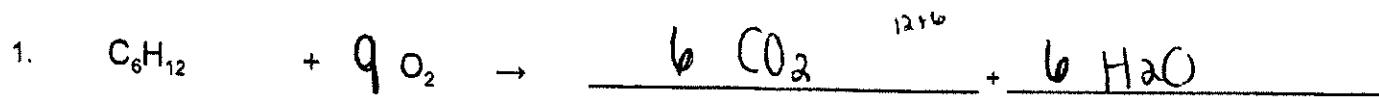
Double Replacement- a chemical change involving an exchange of positive ions between two compounds.



1. Calcium chloride + potassium carbonate \rightarrow calcium carbonate + potassium chloride
 $\text{CaCl}_2 + \text{K}_2\text{CO}_3 \rightarrow \text{CaCO}_3 + 2\text{KCl}$
2. barium chloride + potassium phosphate \rightarrow barium phosphate + potassium chloride
 $3\text{BaCl}_2 + 2\text{K}_3\text{PO}_4 \rightarrow \text{Ba}_3(\text{PO}_4)_2 + 6\text{KCl}$
3. aluminum sulfite + potassium hydroxide \rightarrow aluminum hydroxide + potassium sulfite
 $\text{Al}_2(\text{SO}_3)_3 + 6\text{KOH} \rightarrow 2\text{Al}(\text{OH})_3 + 3\text{K}_2\text{SO}_3$
4. iron (IV) chloride + copper (II) sulfate \rightarrow Iron (IV) sulfate + copper (II) chloride
 $\text{FeCl}_4 + 2\text{CuSO}_4 \rightarrow \text{Fe}(\text{SO}_4)_2 + 2\text{CuCl}_2$
5. silver nitrite + sodium bromide \rightarrow silver bromide + sodium nitrite
 $\text{AgNO}_3 + \text{NaBr} \rightarrow \text{AgBr} + \text{NaNO}_3$
6. cobalt (III) iodide + barium iodate \rightarrow cobalt (III) iodate + barium iodide
 $2\text{CoI}_3 + 3\text{Ba}(\text{IO}_3)_2 \rightarrow 2\text{Co}(\text{IO}_3)_3 + 3\text{BaI}_2$

Combustion- when a hydrocarbon reacts with O₂ to form CO₂ and H₂O.
Example: 2C₄H₁₀ + 7O₂ → 4CO₂ + 10 H₂O

When balancing: 1. Count carbons. 2. Count hydrogens. 3. Count oxygens.



Predicting Reaction Products

Balance the equations and predict the products for the following reactions:

