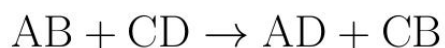
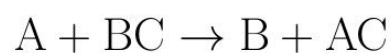
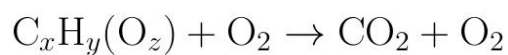
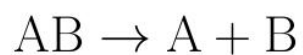


Types of Chemical Reactions

- Synthesis - combining
- Decomposition - breaking down
- Combustion - burning
- Single replacement - one swap
- Double replacement - swap partners

General formula



Section 1: Identify the type of reaction

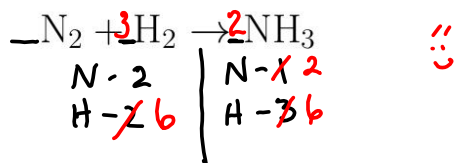
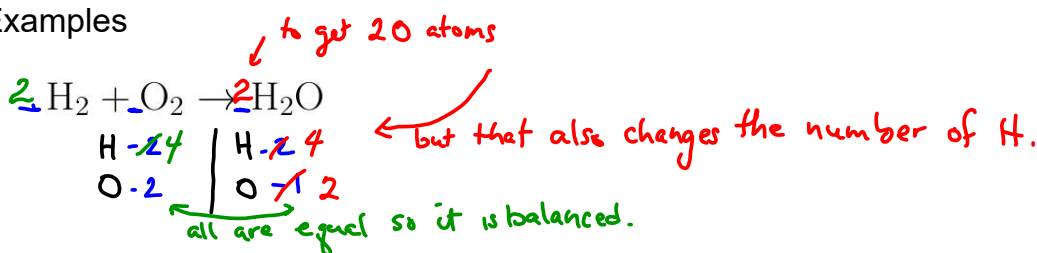
For the following reactions, indicate whether the following are examples of synthesis, decomposition, combustion, single displacement, double displacement, or ~~acid base reactions~~:

- 1) $\text{Na}_3\text{PO}_4 + 3 \text{KOH} \rightarrow 3 \text{NaOH} + \text{K}_3\text{PO}_4$ double replacement
- 2) $\text{MgCl}_2 + \text{Li}_2\text{CO}_3 \rightarrow \text{MgCO}_3 + 2 \text{LiCl}$ double replacement
- 3) $\text{C}_6\text{H}_{12} + 9 \text{O}_2 \rightarrow 6 \text{CO}_2 + 6 \text{H}_2\text{O}$ Combustion
- 4) $\text{Pb} + \text{FeSO}_4 \rightarrow \text{PbSO}_4 + \text{Fe}$ single replacement
- 5) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ decomposition
- 6) $\text{P}_4 + 3 \text{O}_2 \rightarrow 2 \text{P}_2\text{O}_3$ Synthesis
- 7) $2 \text{RbNO}_3 + \text{BeF}_2 \rightarrow \text{Be}(\text{NO}_3)_2 + 2 \text{RbF}$ double replacement
- 8) $2 \text{AgNO}_3 + \text{Cu} \rightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{Ag}$ single replacement
 $\text{Cu} + 2 \text{AgNO}_3 \rightarrow 2 \text{Ag} + \text{Cu}(\text{NO}_3)_2$
- 9) $\text{C}_3\text{H}_6\text{O} + 4 \text{O}_2 \rightarrow 3 \text{CO}_2 + 3 \text{H}_2\text{O}$ Combustion
- 10) $2 \text{C}_5\text{H}_5 + \text{Fe} \rightarrow \text{Fe}(\text{C}_5\text{H}_5)_2$ synthesis
- 11) $\text{SeCl}_6 + \text{O}_2 \rightarrow \text{SeO}_2 + 3 \text{Cl}_2$ single replacement.
- 12) $2 \text{MgI}_2 + \text{Mn}(\text{SO}_3)_2 \rightarrow 2 \text{MgSO}_3 + \text{MnI}_4$ double replacement
- 13) $\text{O}_3 \rightarrow \text{O} + \text{O}_2$ decomposition
- 14) $2 \text{NO}_2 \rightarrow 2 \text{O}_2 + \text{N}_2$ decomposition

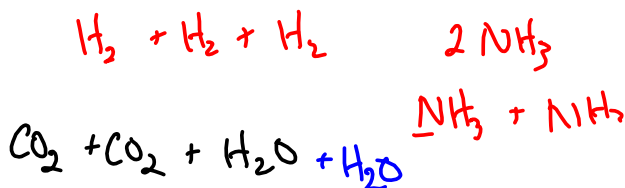
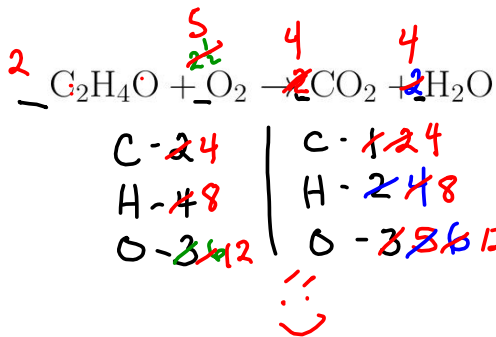
Balancing Equations

1. Count each type of atom in reactants and products. Does the same number of each atom appear on both sides of the arrow? If not, the equation is not balanced, and you need to go to step 2.
2. Place coefficients, as needed, in front of the symbols or formulas to increase the number of atoms or molecules of the substances. Use the smallest coefficients possible. **Warning! Never change the subscripts in chemical formulas.** Changing subscripts changes the substances involved in the reaction. Change only the coefficients.
↓ numbers in front of the chemical (atom or molecule)
3. Repeat steps 1 and 2 until the equation is balanced.

Examples



start with elements that aren't O, H.



It's balanced BUT I can't have $\frac{1}{2}$ a molecule ∴

SO we double EVERYTHING.

Note: this is about as complicated as it gets.

Homework:

Balance the 1st 3 equations in section 2 of the worksheet.