

Types of Chemical Reactions Worksheet #1

H/Chemistry

For each of the following equations, identify what kind of reaction it represents: double replacement, single replacement, decomposition, or synthesis (composition).

- 1) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ **Synthesis**
- 2) $\text{CaI}_2 + \text{Cl}_2 \rightarrow \text{CaCl}_2 + \text{I}_2$ **Single Replacement**
- 3) $3\text{KOH} + \text{AlCl}_3 \rightarrow \text{Al(OH)}_3 + 3\text{KCl}$ **Double Replacement**
- 4) $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$ **Synthesis**
- *5) $\text{Ca(OH)}_2 + 2\text{HCl} \rightarrow \text{CaCl}_2 + 2\text{H}_2\text{O}$ **Double Replacement**
- 6) $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$ **Decomposition**
- 7) $3\text{CuSO}_4 + 2\text{Al} \rightarrow \text{Al}_2(\text{SO}_4)_3 + 3\text{Cu}$ **Single Replacement**
- 8) $\text{Na}_2\text{S} + 2\text{AgNO}_3 \rightarrow 2\text{NaNO}_3 + \text{Ag}_2\text{S}$ **Double Replacement**
- 9) $3\text{H}_2 + \text{N}_2 \rightarrow 2\text{NH}_3$ **Synthesis**
- *10) $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$ **Single Replacement**

*Remember: "H₂O" can also be thought of as "HOH"

Complete each of the following equations as needed to make it the type of reaction indicated. Be sure to write each formula correctly.

- 11) Double replacement: $\text{Na}_2\text{CrO}_4 + \text{PbCl}_2 \rightarrow 2\text{NaCl} + \text{PbCrO}_4$
- 12) Single replacement: $\text{Cl}_2 + 2\text{NaBr} \rightarrow 2\text{NaCl} + \text{Br}_2$
- 13) Decomposition: $\text{Mg}(\text{ClO}_3)_2 \rightarrow \text{MgCl}_2 + 3\text{O}_2$
- 14) Synthesis: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- 15) Double replacement: $3\text{Ca(OH)}_2 + 2\text{FeCl}_3 \rightarrow 2\text{Fe(OH)}_3 + 3\text{CaCl}_2$
- 16) Single replacement: $\text{Fe} + \text{Cu(NO}_3)_2 \rightarrow \text{Fe(NO}_3)_2 + \text{Cu}$ [Assume Fe²⁺]
- 17) Decomposition: $2\text{Hg}_2\text{O} \rightarrow 4\text{Hg} + \text{O}_2$
- 18) Synthesis: $\text{S} + \text{O}_2 \rightarrow \text{SO}_2$
- 19) Double replacement: $\text{AgNO}_3 + \text{KI} \rightarrow \text{AgI} + \text{KNO}_3$
- 20) Single replacement: $\text{Cu} + 2\text{AgNO}_3 \rightarrow 2\text{Ag} + \text{Cu(NO}_3)_2$ [Copper (II) is used here]