

**Balance the following reactions. Classify the reactions as synthesis, decomposition, single displacement, or double displacement.**

1.  $\text{Fe} + \text{Ag}_2\text{SO}_4 \rightarrow \text{FeSO}_4 + \text{Ag}$
2.  $\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$
3.  $\text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O} + \text{O}_2$
4.  $\text{Cl}_2 + \text{KI} \rightarrow \text{KCl} + \text{I}_2$
5.  $\text{CaCO}_3 + \text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{CO}_3$
6.  $(\text{NH}_4)_2\text{Cr}_2\text{O}_7 \rightarrow \text{N}_2 + \text{H}_2\text{O} + \text{Cr}_2\text{O}_3$
7.  $\text{Fe}_2\text{O}_3 + \text{Al} \rightarrow \text{Al}_2\text{O}_3 + \text{Fe}$
8.  $\text{C}_2\text{H}_6 \rightarrow \text{C} + \text{H}_2$
9.  $\text{BaCl}_2 + \text{NaOH} \rightarrow \text{Ba}(\text{OH})_2 + \text{NaCl}$
10.  $\text{N}_2 + \text{H}_2 \rightarrow \text{NH}_3$

**Write complete equations for the following reactions. Balance each equation.**

11. Aluminum and sulfur react in a synthesis reaction.
12. Lead (II) nitrate and sodium carbonate react in a double replacement reaction
13. Zinc metal and tin (II) chloride solution undergo a single replacement reaction.
14. Water is decomposed with an electrical current.
15. Magnesium metal and iron (II) nitrate undergo a single replacement reaction.