Synthesis and Decomposition Reaction - Answers

Identify the following reactions as synthesis or decomposition.

1. $CaO(s)+H_2O(l) \rightarrow Ca(OH)_2(aq)$

Type of reaction: __**synthesis**_____

2. $FeCl_3(s) \rightarrow Fe(s) + Cl_2(g)$

Type of reaction: __**decomposition**_____

3. $P_2O_5(s) + H_2O(l) \rightarrow H_3PO_4(aq)$

Type of reaction: __**synthesis**_____

4. $NH_4NO_3(s) \rightarrow H_2O(l) + N_2O(g)$

Type of reaction: __**decomposition**_____

5. $NaHCO_3(s) \rightarrow Na_2CO_3(s) + CO_2(g) + H_2O(l)$

Type of reaction: ___**decomposition**_____

6. $NO(g) + O_2(g) \rightarrow NO_2(g)$

Type of reaction: ___**synthesis**_____

7. $Ag_2CO_3(s) \rightarrow Ag_2O(s) + CO_2(g)$

Type of reaction: ___**decomposition**_____

8. $Ca(OH)_2(s) \rightarrow Ca(s) + H_2O(l) + O_2(g)$

Type of reaction: ____**decomposition**_____

9. $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$

Type of reaction: ____**decomposition**_____

10. $PbCO_3(s) \rightarrow PbO(s) + CO_2(g)$

Type of reaction: ____**decomposition**_____

11. $BeCl_2(s) + O_2(g) \rightarrow Be(ClO_3)_2(s)$

Type of reaction: ____**synthesis**_____

12. $CuO(s) \rightarrow Cu(s) + O_2(g)$

Type of reaction: ____**decomposition**_____

Predict the products for the following synthesis and decomposition reactions.

Synthesis:

1. $Mg + Cl_2 \rightarrow$ **$MgCl_2$**
2. **4** $Li + O_2 \rightarrow$ **2 Li_2O**
3. $BeO + H_2O \rightarrow$ **$Be(OH)_2$**
4. **2** $Zn + O_2 \rightarrow$ **2 ZnO**
5. $SO_3 + H_2O \rightarrow$ **H_2SO_4**
6. **2** $Fr + Br_2 \rightarrow$ **2 FrBr**
7. **2** $NaO + H_2O \rightarrow$ **2 NaOH**
8. **4** $P +$ **3** $O_2 \rightarrow$ **2 P_2O_3**
9. $ClO_2 + H_2O \rightarrow$ **H_2ClO_3**
10. $Sr + I_2 \rightarrow$ **SrI_2**

Decomposition:

11. **2** $KF \rightarrow$ **2 K + $F_{2(g)}$**
12. **2** $NO_4 \rightarrow$ **$N_{2(g)}$ + 4 $O_{2(g)}$**
13. $CuO \rightarrow$ **$Cu_{(s)}$ + $O_{2(g)}$**
14. $H_2CO_3 \rightarrow$ **$H_2O_{(l)}$ + $CO_{2(g)}$**
15. $PbS_2 \rightarrow$ **$Pb_{(s)}$ + 2 $S_{(s)}$**