KEY

Balancing Chemical Equations

Rewrite and balance the equations below:

1. $2NaCl + F_2 \rightarrow 2NaF + Cl_2$

2. $2AgNO_3 + MgCl_2 \rightarrow 2AgCl + Mg(NO_3)_2$

3. $2AlBr_3 + 3K_2SO_4 \rightarrow 6KBr + Al_2(SO_4)_3$

4. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

5. $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

6. $4P + 5O_2 \rightarrow 2P_2O_5$

7. $2Ag_2O \rightarrow 4Ag + O_2$

8. $S_8 + 12O_2 \rightarrow 8SO_3$

9. $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

10. $2K + MgBr_2 \rightarrow 2KBr + Mg$

11. $2HCl + CaCO_3 \rightarrow CaCl_2 + H_2O + CO_2$

12. aluminum bromide plus chlorine yield aluminum chloride plus bromine.
    $2AlBr_3 + 3Cl_2 \rightarrow 2AlCl_3 + 3Br_2$
13. sodium phosphate + calcium chloride yield calcium phosphate + sodium chloride.
    $2Na_3PO_4 + 3CaCl_2 \rightarrow Ca_3(PO_4)_2 + 6NaCl$
14. potassium chlorate when heated yields potassium chloride + oxygen gas.
    $2KClO_3 \rightarrow 2KCl + 3O_2$
15. Hydrogen plus nitrogen monoxide yield water plus nitrogen.
    $2H_2 + 2NO \rightarrow 2H_2O + N_2$

Classification of Chemical Reactions

Classify the reactions below as synthesis, decomposition, single replacement, double replacement, or combustion. On the second line, balance the equation.

1. $H_2 + O_2 \rightarrow H_2O$ synthesis
   a. $2\ H_2 + O_2 \rightarrow 2H_2O$
2. $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$ single replacement
   a. balanced
3. $CO + O_2 \rightarrow CO_2$ synthesis
   a. balanced
4. $HgO \rightarrow Hg + O_2$ decomposition
   a. $2HgO \rightarrow 2Hg + O_2$
5. $C_{10}H_{20} + O_2 \rightarrow CO_2 + H_2O$ combustion (double replacement)
   a. $C_{10}H_{20} + 15O_2 \rightarrow 10CO_2 + 10H_2O$
6. $H_2O \rightarrow H_2 + O_2$ decomposition
   a. $2H_2O \rightarrow 2H_2 + O_2$
7. $KBr + Cl_2 \rightarrow KCl + Br$ single replacement
   a. $2KBr + Cl_2 \rightarrow 2KCl + 2Br$
8. $CaO + H_2O \rightarrow Ca(OH)_2$ synthesis
   a. balanced
9. $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ double replacement
   a. balanced
10. $H_2O_2 \rightarrow H_2O + O_2$ decomposition
    a. $4H_2O_2 \rightarrow 4H_2O + 2O_2$
11. $Ca(OH)_2 + H_2SO_4 \rightarrow CaSO_4 + H_2O$ double replacement
    a. $Ca(OH)_2 + H_2SO_4 \rightarrow CaSO_4 + 2H_2O$