Worksheet: Chemical Equations Review

Name:_____
Date:_____
Period:_____

Sections 1: Identify the type of reaction

For the following reactions, indicate whether the following are examples of synthesis, decomposition, combustion, single displacement, or double displacement.

1. $Na_3PO_4 + 3KOH \rightarrow 3\ NaOH + K_3PO_4$ _____
2. $MgCl_2 + Li_2CO_3 \rightarrow MgCO_3 + 2\ LiCl$ _____
3. $C_6H_{12} + 9O_2 \rightarrow 6CO_2 + 6\ H_2O$ _____
4. $Pb + FeSO_4 \rightarrow PbSO_4 + Fe$ _____
5. $CaCO_3 \rightarrow CaO + CO_2$ _____
6. $P_4 + 3O_2 \rightarrow 2P_2O_3$ _____
7. $2RbNO_3 + BeF_2 \rightarrow Be(NO_3)_2 + 2RbF$ _____
8. $2AgNO_3 + Cu \rightarrow Cu(NO_3)_2 + 2Ag$ _____
9. $C_3H_6O + 4O_2 \rightarrow 3CO_2 + 3\ H_2O$ _____
10. $2C_5H_5 + Fe \rightarrow Fe(C_5H_5)_2$ _____
11. $SeCl_6 + O_2 \rightarrow SeO_2 + 3Cl_2$ _____
12. $2\ MgI_2 + Mn(SO_3)_2 \rightarrow 2MgSO_3 + MnI_4$ _____
13. $O_3 \rightarrow O + O_2$ _____
14. $2NO_2 \rightarrow 2O_2 + N_2$ _____

Section 2: Practicing Equation Balancing

Balance each of the following equations.

1. $\_\_C_6H_6 + \_\_O_2 \rightarrow \_\_H_2O + \_\_CO_2$
2. $\_\_NaI + \_\_Pb(SO_4)_2 \rightarrow \_\_PbI_4 + \_\_Na_2SO_4$
3. $\_\_NH_3 + \_\_O_2 \rightarrow \_\_NO + \_\_H_2O$
4. $\_\_Fe(OH)_3 \rightarrow \_\_Fe_2O_3 + \_\_H_2O$
5. $\_\_HNO_3 + \_\_Mg(OH)_2 \rightarrow \_\_H_2O + \_\_\ Mg(NO_3)_2$

6. __H_3PO_4 + __NaBr → __HBr + __Na_3PO_4

7. __C + __H_2 → __C_3H_8

8. __CaO + __MnI_4 → __MnO_2 + __CaI_2

9. __Fe_2O_3 + __H_2O → __$Fe(OH)_3$

10. __C_2H_2 + __H_2 → __C_2H_6

11. __VF_5 + __HI → __V_2I_{10} + __HF

12. __OsO_4 + __$PtCl_4$ → __PtO_2 + __$OsCl_8$

13. __CF_4 + __Br_2 → __CBr_4 + __F_2

14. __Hg_2I_2 + __O_2 → __Hg_2O + __I_2

Section 3: Prediction the products of chemical reactions

Predict the products of the following reactions, identify the type of reactions, and balance the equation.

1. __Ag + __$CuSO_4$ →

   Type:_____

2. __NaI + __$CaCl_2$ →

   Type: _____

3. __O_2 + __H_2 →

   Type: _____

4. __$AgNO_2$ + __$BaSO_4$ →

   Type: _____

5. __HCN + __$CuSO_4$ →

   Type:_____

6. __H_2O + __AgI →

Type: _____

7. __LiBr + __$Co(SO_3)_2$ →

Type: _____

8. __$LiNO_3$ + __Ag →

Type: _____

9. __$AlCl_3$ + __Cs →

Type: _____

10. __CH_3COOH + __O_2 →

Type: _____

11. __C_4H_8 + __O_2

Type: _____

12. __KCl + __$Mg(OH)_2$ →

Type: _____

13. __Zn + __ $Au(NO_2)_2$ →

Type: _____

14. __Na_2O →

Type: _____

Section 4 Writing and balancing chemical equations
Write the balanced chemical equation.

1. Solid lithium and liquid water react to form lithium hydroxide in aqueous solution and hydrogen gas.

2. Solid copper (II) sulfide and oxygen gas produce solid copper (II) oxide and sulfur dioxide gas.

3. Sulfur dioxide gas and oxygen gas combine to form sulfur trioxide gas.

4. Water vapor reacts with potassium metal to produce hydrogen and aqueous potassium hydroxide.

5. Solid iron, liquid water, and oxygen gas combine to produce iron (II) hydroxide.

6. Tetraphosphorus decoxide + water $\longrightarrow$ Hydrogen phosphate

7. Sodium hydroxide + Chlorine $\longrightarrow$ Sodium chloride + Sodium hypochlorite + water

8. Potassium chlorate $\longrightarrow$ Potassium perchlorate + Potassium chloride