**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hr \_\_\_\_\_\_\_**

**Types of Reactions Worksheet THEN Balancing!**

*First, begin by telling which type of reaction is taking place. Then go back and balance the following equations:*

When finished, check your answers.

1) \_\_\_\_ NaBr + \_\_\_\_ H3PO4 🡪 \_\_\_\_ Na3PO4 + \_\_\_\_ HBr Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) \_\_\_\_ Ca(OH)2 + \_\_\_\_ Al2(SO4)3 🡪 \_\_\_\_ CaSO4 + \_\_\_\_ Al(OH)3 Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) \_\_\_\_ Mg + \_\_\_\_ Fe2O3 🡪 \_\_\_\_ Fe + \_\_\_\_ MgO Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) \_\_\_\_ C2H4 + \_\_\_\_ O2 🡪 \_\_\_\_ CO2 + \_\_\_\_ H2O Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) \_\_\_\_ PbSO4 🡪 \_\_\_\_ PbSO3 + \_\_\_\_ O2 Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) \_\_\_\_ NH3 + \_\_\_\_ I2 🡪 \_\_\_\_ N2I6 + \_\_\_\_ H2 Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7) \_\_\_\_ H2O+ \_\_\_\_ SO3 🡪 \_\_\_\_ H2SO4 Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8) \_\_\_\_ H2SO4 + \_\_\_\_ NH4OH 🡪 \_\_\_\_ H2O + \_\_\_\_ (NH4)2SO4 Type of reaction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Balancing Equations Practice Worksheet**

*Balance the following equations:*

1) \_\_\_ NaNO3 + \_\_\_ PbO 🡪 \_\_\_ Pb(NO3)2 + \_\_\_ Na2O

2) \_\_\_ AgI + \_\_\_ Fe2(CO3)3 🡪 \_\_\_ FeI3 + \_\_\_ Ag2CO­3

3) \_\_\_ C2H4O2 + \_\_\_ O2 🡪 \_\_\_ CO2 + \_\_\_ H2O

4) \_\_\_ ZnSO4 + \_\_\_ Li2CO3 🡪 \_\_\_ ZnCO3 + \_\_\_ Li2SO4

5) \_\_\_ V2O5 + \_\_\_ CaS 🡪 \_\_\_ CaO + \_\_\_ V2S5

6) \_\_\_ Mn(NO2)2 + \_\_\_ BeCl2 🡪 \_\_\_ Be(NO2)2 + \_\_\_ MnCl2

7) \_\_\_ AgBr + \_\_\_ GaPO4 🡪 \_\_\_ Ag3PO4 + \_\_\_ GaBr3

8) \_\_\_ H2SO4 + \_\_\_ B(OH)3 🡪 \_\_ B2(SO4)3 + \_\_\_ H2O

9) \_\_\_ S8­ + \_\_\_ O2 🡪 \_\_\_ SO2

10) \_\_\_ Fe + \_\_\_ AgNO3 🡪 \_\_\_ Fe(NO3)2 + \_\_\_ Ag

**Another Balancing Equations Sheet!**

*Balance these equations!*

1) \_\_\_\_ AlBr3 + \_\_\_\_ K 🡪 \_\_\_\_ KBr + \_\_\_\_ Al

2) \_\_\_\_ FeO + \_\_\_\_ PdF2 🡪 \_\_\_\_ FeF2 + \_\_\_\_ PdO

3) \_\_\_\_ P4 + \_\_\_\_ Br2 🡪 \_\_\_\_ PBr3

4) \_\_\_\_ LiCl + \_\_\_\_ Br2 🡪 \_\_\_\_ LiBr + \_\_\_\_ Cl2

5) \_\_\_\_ PbBr2 + \_\_\_\_ HCl 🡪 \_\_\_\_ HBr + \_\_\_\_ PbCl2

6) \_\_\_\_ CoBr3 + \_\_\_\_ CaSO4 🡪 \_\_\_\_ CaBr2 + \_\_\_\_ Co2(SO4)3

7) \_\_\_\_ Na3P + \_\_\_\_ CaF2 🡪 \_\_\_\_ NaF + \_\_\_\_ Ca3P2

8) \_\_\_\_ Mn + \_\_\_\_ HI 🡪 \_\_\_\_ H2 + \_\_\_\_ MnI3

9) \_\_\_\_ Li3PO4 + \_\_\_\_ NaBr 🡪 \_\_\_\_ Na3PO4 + \_\_\_\_ LiBr

10) \_\_\_\_ CaF2 + \_\_\_\_ Li2SO4 🡪 \_\_\_\_ CaSO4 + \_\_\_\_ LiF

11) \_\_\_\_ HBr + \_\_\_\_ Mg(OH)2 🡪 \_\_\_\_ MgBr2 + \_\_\_\_ H2O

12) \_\_\_\_ LiNO3 + \_\_\_\_ CaBr2 🡪 \_\_\_\_ Ca(NO3)2 + \_\_\_\_ LiBr

13) \_\_\_\_ AgNO3 + \_\_\_\_ Li 🡪 \_\_\_\_ LiNO3 + \_\_\_\_ Ag

14) \_\_\_\_ Si(OH)4 + \_\_\_\_ NaBr 🡪 \_\_\_\_ SiBr4 + \_\_\_\_ NaOH

15) \_\_\_\_ NaCN + \_\_\_\_ CuCO3 🡪 \_\_\_\_ Na2CO3 + \_\_\_\_ Cu(CN)2

**Word Equations Worksheet**

Write *and balance the following chemical equations. Then determine the type of reaction.*

1) When beryllium chloride reacts with silver nitrate, it produces beryllium nitrate and silver chloride.

2) When isopropanol (C3H8O) burns in oxygen it produces carbon dioxide and water.

3) When sodium hydroxide reacts with hydrogen sulfate, it produces sodium sulfate and water.

4) When fluorine is put into contact with calcium metal, calcium fluoride is created.

5) When sodium metal reacts with iron (II) chloride, iron metal and sodium chloride are formed.

**Types of Reactions Worksheet – Solutions**

*Balance the following equations and indicate the type of reaction taking place:*

1) **3** NaBr + **1** H3PO4 🡪 **1** Na3PO4 + **3** HBr Type of reaction: **double replacement**

2) **3** Ca(OH)2 + **1** Al2(SO4)3 🡪 **3** CaSO4 + **2** Al(OH)3 Type of reaction: **double replacement**

3) **3** Mg + **1** Fe2O3 🡪 **2** Fe + **3** MgO Type of reaction: **single replacement**

4) **1** C2H4 + **3** O2 🡪 **2** CO2 + **2** H2O Type of reaction: **combustion**

5) **2** PbSO4 🡪 **2** PbSO3 + **1** O2 Type of reaction: **decomposition**

6) **2** NH3 + **3** I2 🡪 **1** N2I6 + **3** H2 Type of reaction: **double replacement**

7) **1** H2O+ **1** SO3 🡪 **1** H2SO4 Type of reaction: **decomposition**

8) **1** H2SO4 + **2** NH4OH 🡪 **2** H2O + **1** (NH4)2SO4 Type of reaction: **double replacement**

**Solutions for the Balancing Equations Practice Worksheet**

1) 2 NaNO3 + PbO 🡪 Pb(NO3)2 + Na2O

2) 6 AgI + Fe2(CO3)3 🡪 2 FeI3 + 3 Ag2CO­3

3) C2H4O2 + 2 O2 🡪 2 CO2 + 2 H2O

4) ZnSO4 + Li2CO3 🡪 ZnCO3 + Li2SO4

5) V2O5 + 5 CaS 🡪 5 CaO + V2S5

6) Mn(NO2)2 + BeCl2 🡪 Be(NO2)2 + MnCl2

7) 3 AgBr + GaPO4 🡪 Ag3PO4 + GaBr3

8) 3 H2SO4 + 2 B(OH)3 🡪 B2(SO4)3 + 6 H2O Remember H-OH

9) S8­ + 8 O2 🡪 8 SO2

10) Fe + 2 AgNO3 🡪 Fe(NO3)2 + 2 Ag

**Another Balancing Equations Sheet! – Answers**

*Balance these equations!*

**Note to students: Whenever balancing an equation, it is acceptable to leave spaces blank instead of writing “1’ – in chemistry, they mean the same thing. I prefer them left blank.**

1) **1** AlBr3 + **3** K 🡪 **3** KBr + **1** Al

2) FeO + PdF2 🡪 FeF2 + PdO

3) P4 + **6** Br2 🡪 **4** PBr3

4) **2** LiCl + Br2 🡪 **2** LiBr + Cl2

5) PbBr2 + **2** HCl 🡪 **2** HBr + PbCl2

6) **2** CoBr3 + **3** CaSO4 🡪 **3** CaBr2 + Co2(SO4)3

7) **2** Na3P + **3** CaF2 🡪 **6** NaF + Ca3P2

8) **2** Mn + **6** HI 🡪 **3** H2 + **2** MnI3

9) Li3PO4 + **3** NaBr 🡪 Na3PO4 + **3** LiBr

10) CaF2 + Li2SO4 🡪 CaSO4 + **2** LiF

11) **2** HBr + Mg(OH)2 🡪 MgBr2 + **2** H2O H-OH

12) **2** LiNO3 + CaBr2 🡪 Ca(NO3)2 + **2** LiBr

13) AgNO3 + Li 🡪 LiNO3 + Ag

14) Si(OH)4 + **4** NaBr 🡪 SiBr4 + **4** NaOH

15) **2** NaCN + CuCO3 🡪 Na2CO3 + Cu(CN)2

**Word Equations Worksheet - Solutions**

*Write the word equations for each of the following chemical reactions:*

1) **BeCl2 + 2 AgNO3 🡪 Be(NO3)2 + 2 AgCl**

2) **2 C3H8O + 9 O2 🡪 6 CO2 + 8 H2O**

3) **2 NaOH + H2SO­4  🡪 Na2SO4 + 2 H2O**

4) **F2  + Ca 🡪 CaF2**

5) **2 Na + FeCl2  🡪 2 NaCl + Fe**