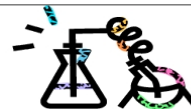


# CHEMICAL REACTIONS REVIEW

## WORKSHEET ANSWERS



### Part I: Balance the following equations

- 2, 1  $\rightarrow$  2
- 1, 12  $\rightarrow$  8
- 2  $\rightarrow$  2, 1
- 1, 2  $\rightarrow$  1, 1
- 2, 2  $\rightarrow$  2, 1
- 1, 8  $\rightarrow$  10, 16
- 4, 11  $\rightarrow$  8, 6
- 4, 3  $\rightarrow$  2
- 2, 15  $\rightarrow$  14, 6
10. 1, 3  $\rightarrow$  2
11. 2, 1  $\rightarrow$  2
12. 6, 6  $\rightarrow$  1, 6
13. 1, 4  $\rightarrow$  1, 4
14. 2  $\rightarrow$  1, 1
15. 1, 2  $\rightarrow$  1, 1
16. 2, 3  $\rightarrow$  1, 6
17. 1, 6  $\rightarrow$  3, 2
18. 1, 8  $\rightarrow$  1, 4, 4

### Part II: Write balanced equations for the following word equations

- potassium chloride + silver nitrate  $\rightarrow$  potassium nitrate + silver chloride  
 $\text{KCl} + \text{AgNO}_3 \rightarrow \text{KNO}_3 + \text{AgCl}$
- aluminum hydroxide + sodium nitrate  $\rightarrow$  aluminum nitrate + sodium hydroxide  
 $\text{Al}(\text{OH})_3 + 3 \text{NaNO}_3 \rightarrow \text{Al}(\text{NO}_3)_3 + 3 \text{NaOH}$
- iron metal + copper(II) sulfate  $\rightarrow$  iron(II) sulfate + copper metal  
 $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$
- aluminum metal + copper(II) chloride  $\rightarrow$  aluminum chloride + copper metal  
 $2 \text{Al} + 3 \text{CuCl}_2 \rightarrow 2 \text{AlCl}_3 + 3 \text{Cu}$

### Part III: identify the type of reaction and balance

- $2\text{H}_2\text{O}(\text{l}) \rightarrow 2\text{H}_2(\text{g}) + \text{O}_2(\text{g})$ ; decomposition
- $2\text{NaCl}(\text{aq}) + \text{H}_2(\text{g}) \rightarrow 2\text{HCl}(\text{aq}) + 2\text{Na}(\text{s})$  single replacement
- $\text{C}_2\text{H}_4 + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 2\text{H}_2\text{O}$  combustion
- $2\text{Mg}(\text{s}) + \text{O}_2(\text{g}) \rightarrow 2\text{MgO}(\text{s})$  synthesis
- $\text{Ca}(\text{OH})_2(\text{s}) \rightarrow \text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{g})$  decomposition/ gas formation
- $2\text{NaCl} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{HCl}$  double replacement
- $\text{HCl} + \text{NaOH} \rightarrow \text{H}_2\text{O} + \text{NaCl}$  acid base/ double replacement
- $\text{HBr} + \text{NaOH} \rightarrow \text{NaBr} + \text{H}_2\text{O}$  acid base double replacement
- $\text{Ba}(\text{NO}_3)_2(\text{aq}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + \text{Cu}(\text{NO}_3)_2(\text{aq})$  precipitation/ double replacement

### Part IV: Write a complete, balanced equation for the following and identify the type of reaction

- zinc and copper II sulfate yield zinc sulfate and copper metal  
 $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$  SINGLE REPLACEMENT
- Chlorine gas and sodium bromide yield sodium chloride and bromine  
 $\text{Cl}_2 + 2 \text{NaBr} \rightarrow 2 \text{NaCl} + \text{Br}_2$  SINGLE REPLACEMENT
- aluminum hydroxide and sulfuric acid neutralize to make water and aluminum sulfate.  
 $2 \text{Al}(\text{OH})_3 + 3 \text{H}_2\text{SO}_4 \rightarrow 6 \text{H}_2\text{O} + \text{Al}_2(\text{SO}_4)_3$  DOUBLE REPLACEMENT OR ACID-BASE NEUTRALIZATION

### Part V: Knowing the type of reactions; identify the products of the reaction and balance the reaction

- Synthesis;  $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$
- Decomposition  $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
- Single Replacement  $2\text{NaBr} + \text{Cl}_2 \rightarrow 2\text{NaCl} + \text{Br}_2$
- Double replacement  $2\text{KCl} + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + 2\text{HCl}$
- Combustion  $\text{C}_2\text{H}_4 + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 2\text{H}_2\text{O}$

### Part VI: Predict the product:

- Aluminum Hydroxide + acetic acid =  
 $\text{Al}(\text{OH})_3 + 3\text{HC}_2\text{H}_3\text{O}_2 \rightarrow 3\text{H}_2\text{O} + \text{Al}(\text{C}_2\text{H}_3\text{O}_2)_3$