

**BALANCING EQUATIONS PRACTICE WORKSHEET**

- 1.) \_\_\_ CH<sub>4</sub> + \_\_\_ O<sub>2</sub> → \_\_\_ CO<sub>2</sub> + \_\_\_ H<sub>2</sub>O
- 2.) \_\_\_ Na + \_\_\_ I<sub>2</sub> → \_\_\_ NaI
- 3.) \_\_\_ N<sub>2</sub> + \_\_\_ O<sub>2</sub> → \_\_\_ N<sub>2</sub>O
- 4.) \_\_\_ N<sub>2</sub> + \_\_\_ H<sub>2</sub> → \_\_\_ NH<sub>3</sub>
- 5.) \_\_\_ KI + \_\_\_ Cl<sub>2</sub> → \_\_\_ KCl + \_\_\_ I<sub>2</sub>
- 6.) \_\_\_ HCl + \_\_\_ Ca(OH)<sub>2</sub> → \_\_\_ CaCl<sub>2</sub> + \_\_\_ H<sub>2</sub>O
- 7.) \_\_\_ KClO<sub>3</sub> → \_\_\_ KCl + \_\_\_ O<sub>2</sub>
- 8.) \_\_\_ K<sub>3</sub>PO<sub>4</sub> + \_\_\_ HCl → \_\_\_ KCl + \_\_\_ H<sub>3</sub>PO<sub>4</sub>
- 9.) \_\_\_ S + \_\_\_ O<sub>2</sub> → \_\_\_ SO<sub>3</sub>
- 10.) \_\_\_ KI + \_\_\_ Pb(NO<sub>3</sub>)<sub>2</sub> → \_\_\_ KNO<sub>3</sub> + \_\_\_ PbI<sub>2</sub>
- 11.) \_\_\_ CaSO<sub>4</sub> + \_\_\_ AlBr<sub>3</sub> → \_\_\_ CaBr<sub>2</sub> + \_\_\_ Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>
- 12.) \_\_\_ H<sub>2</sub>O<sub>2</sub> → \_\_\_ H<sub>2</sub>O + \_\_\_ O<sub>2</sub>
- 13.) \_\_\_ Na + \_\_\_ H<sub>2</sub>O → \_\_\_ NaOH + \_\_\_ H<sub>2</sub>
- 14.) \_\_\_ C<sub>2</sub>H<sub>6</sub> + \_\_\_ O<sub>2</sub> → \_\_\_ CO<sub>2</sub> + \_\_\_ H<sub>2</sub>O
- 15.) \_\_\_ Mg(NO<sub>3</sub>)<sub>2</sub> + \_\_\_ K<sub>3</sub>PO<sub>4</sub> → \_\_\_ Mg<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> + \_\_\_ KNO<sub>3</sub>

**REACTION TYPES WORKSHEET**

--> Balance each equation.

--> Identify the type of reaction as:

\* S - synthesis

\* D - decomposition

\* C - combustion

\* SR - single replacement

\* DR - double replacement

TYPE

- \_\_\_ 1. \_\_\_ Fe + \_\_\_ O<sub>2</sub> → \_\_\_ Fe<sub>2</sub>O<sub>3</sub>
- \_\_\_ 2. \_\_\_ Cl<sub>2</sub> + \_\_\_ KBr → \_\_\_ KCl + \_\_\_ Br<sub>2</sub>
- \_\_\_ 3. \_\_\_ Fe + \_\_\_ Cu(NO<sub>3</sub>)<sub>2</sub> → \_\_\_ Fe(NO<sub>3</sub>)<sub>3</sub> + \_\_\_ Cu
- \_\_\_ 4. \_\_\_ NaCl → \_\_\_ Na + \_\_\_ Cl<sub>2</sub>
- \_\_\_ 5. \_\_\_ FeCl<sub>3</sub> + \_\_\_ KOH → \_\_\_ KCl + \_\_\_ Fe(OH)<sub>3</sub>
- \_\_\_ 6. \_\_\_ KClO<sub>3</sub> → \_\_\_ KCl + \_\_\_ O<sub>2</sub>
- \_\_\_ 7. \_\_\_ Al + \_\_\_ O<sub>2</sub> → \_\_\_ Al<sub>2</sub>O<sub>3</sub>
- \_\_\_ 8. \_\_\_ Na<sub>2</sub>S + \_\_\_ AgNO<sub>3</sub> → \_\_\_ Ag<sub>2</sub>S + \_\_\_ NaNO<sub>3</sub>
- \_\_\_ 9. \_\_\_ CaCO<sub>3</sub> → \_\_\_ CaO + \_\_\_ CO<sub>2</sub>
- \_\_\_ 10. \_\_\_ Mg + \_\_\_ HCl → \_\_\_ MgCl<sub>2</sub> + \_\_\_ H<sub>2</sub>
- \_\_\_ 11. \_\_\_ Mg(OH)<sub>2</sub> + \_\_\_ HCl → \_\_\_ MgCl<sub>2</sub> + \_\_\_ H<sub>2</sub>O
- \_\_\_ 12. \_\_\_ Na<sub>2</sub>SO<sub>4</sub> + \_\_\_ BaCl<sub>2</sub> → \_\_\_ BaSO<sub>4</sub> + \_\_\_ NaCl
- \_\_\_ 13. \_\_\_ C<sub>2</sub>H<sub>2</sub> + \_\_\_ O<sub>2</sub> → \_\_\_ CO<sub>2</sub> + \_\_\_ H<sub>2</sub>O
- \_\_\_ 14. \_\_\_ CaI<sub>2</sub> + \_\_\_ F<sub>2</sub> → \_\_\_ CaF<sub>2</sub> + \_\_\_ I<sub>2</sub>
- \_\_\_ 15. \_\_\_ NaOH → \_\_\_ Na<sub>2</sub>O + \_\_\_ H<sub>2</sub>O
- \_\_\_ 16. \_\_\_ ZnBr<sub>2</sub> + \_\_\_ AgNO<sub>3</sub> → \_\_\_ AgBr + \_\_\_ Zn(NO<sub>3</sub>)<sub>2</sub>

- \_\_\_ 17. \_\_\_ C<sub>4</sub>H<sub>10</sub> + \_\_\_ O<sub>2</sub> → \_\_\_ CO<sub>2</sub> + \_\_\_ H<sub>2</sub>O  
 \_\_\_ 18. \_\_\_ K + \_\_\_ Br<sub>2</sub> → \_\_\_ KBr  
 \_\_\_ 19. \_\_\_ NaHCO<sub>3</sub> → \_\_\_ Na<sub>2</sub>CO<sub>3</sub> + \_\_\_ H<sub>2</sub>O + \_\_\_ CO<sub>2</sub>  
 \_\_\_ 20. \_\_\_ AgNO<sub>3</sub> + \_\_\_ Cu → \_\_\_ Ag + \_\_\_ Cu(NO<sub>3</sub>)<sub>2</sub>  
 \_\_\_ 21. \_\_\_ CuSO<sub>4</sub> + \_\_\_ NaOH → \_\_\_ Cu(OH)<sub>2</sub> + \_\_\_ Na<sub>2</sub>SO<sub>4</sub>  
 \_\_\_ 22. \_\_\_ Ca(ClO<sub>3</sub>)<sub>2</sub> → \_\_\_ CaCl<sub>2</sub> + \_\_\_ O<sub>2</sub>  
 \_\_\_ 23. \_\_\_ PH<sub>3</sub> + \_\_\_ O<sub>2</sub> → \_\_\_ H<sub>3</sub>PO<sub>4</sub>  
 \_\_\_ 24. \_\_\_ H<sub>2</sub>O + \_\_\_ Fe → \_\_\_ H<sub>2</sub> + \_\_\_ Fe<sub>3</sub>O<sub>4</sub>  
 \_\_\_ 25. \_\_\_ NO + \_\_\_ O<sub>2</sub> → \_\_\_ NO<sub>2</sub>

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**Unit 8 Review Worksheet (Standard level)**

- (A) Write the formula(s) for the products of the reaction (if they are not already given).  
 (B) Balance the equation.  
 (C) Tell the type of reaction.

|     | Reactants  | → | Products                                      | Type of Equation |
|-----|--|---|---|------------------|
| 1.  | silver nitrate + sodium chloride<br>___ AgNO <sub>3</sub> + ___ NaCl   | → | ___ AgCl + ___ NaNO <sub>3</sub>              |                  |
| 2.  | ammonium sulfide + barium nitrate<br>___ (NH <sub>4</sub> ) <sub>2</sub> S + ___ Ba(NO <sub>3</sub> ) <sub>2</sub> | → | ___ NH <sub>4</sub> NO <sub>3</sub> + ___ BaS |                  |
| 3.  | lithium carbonate<br>___ Li <sub>2</sub> CO <sub>3</sub>   | → | ___ Li <sub>2</sub> O + ___ CO <sub>2</sub>   |                  |
| 4.  | zinc + sulfur<br>___ Zn + ___ S  | → | ___ ZnS                                       |                  |
| 5.  | potassium + chlorine<br>___ K + ___ Cl <sub>2</sub>  | → | ___ KCl                                       |                  |
| 6.  | magnesium nitride<br>___ Mg <sub>3</sub> N <sub>2</sub>  | → | ___ Mg + ___ N <sub>2</sub>                   |                  |
| 7.  | aluminum + copper (II) sulfate<br>___ Al + ___ CuSO <sub>4</sub>   | → |   |                  |
| 8.  | aluminum + iron (III) bromide<br>___ Al + ___ FeBr <sub>3</sub>  | → |   |                  |
| 9.  | bromine + silver chloride<br>___ Br <sub>2</sub> + ___ AgCl  | → |   |                  |
| 10. | zinc + nickel (II) nitrate<br>___ Zn + ___ Ni(NO <sub>3</sub> ) <sub>2</sub>                                       | → |   |                  |
| 11. | magnesium + silver sulfate<br>___ Mg + ___ Ag <sub>2</sub> SO <sub>4</sub>   | → |   |                  |

|     |  |   |   |  |
|-----|--|---|---|--|
| 12. | potassium sulfate + aluminum chlorate<br>$\underline{\quad} \text{K}_2\text{SO}_4 + \underline{\quad} \text{Al}(\text{ClO}_3)_3$                           | → | $\underline{\quad} \text{KClO}_3 + \underline{\quad} \text{Al}_2(\text{SO}_4)_3$                      |  |
| 13. | ethane (C <sub>2</sub> H <sub>6</sub> ) + oxygen<br>$\underline{\quad} \text{C}_2\text{H}_6 + \underline{\quad} \text{O}_2$                                | → |   |  |
| 14. | copper (II) chloride + sodium phosphate<br>$\underline{\quad} \text{CuCl}_2 + \underline{\quad} \text{Na}_3\text{PO}_4$                                    | → | $\underline{\quad} \text{Cu}_3(\text{PO}_4)_2 + \underline{\quad} \text{NaCl}$                        |  |
| 15. | calcium bicarbonate<br>$\underline{\quad} \text{Ca}(\text{HCO}_3)_2$   | → | $\underline{\quad} \text{CaO} + \underline{\quad} \text{CO}_2 + \underline{\quad} \text{H}_2\text{O}$ |  |
| 16. | strontium nitrate + copper (II) sulfate<br>$\underline{\quad} \text{Sr}(\text{NO}_3)_2 + \underline{\quad} \text{CuSO}_4$                                  | → | $\underline{\quad} \text{SrSO}_4 + \underline{\quad} \text{Cu}(\text{NO}_3)_2$                        |  |
| 17. | magnesium acetate + iron (III) carbonate<br>$\underline{\quad} \text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2 + \underline{\quad} \text{Fe}_2(\text{CO}_3)_3$ | → | $\underline{\quad} \text{MgCO}_3 + \underline{\quad} \text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_3$     |  |
| 18. | copper (II) phosphate + zinc<br>$\underline{\quad} \text{Cu}_3(\text{PO}_4)_2 + \underline{\quad} \text{Zn}$   | → |   |  |
| 19. | potassium + HCl<br>$\underline{\quad} \text{K} + \underline{\quad} \text{HCl}$   | → |   |  |
| 20. | calcium + potassium chlorate<br>$\underline{\quad} \text{Ca} + \underline{\quad} \text{KClO}_3$  | → |   |  |