

NAME: \_\_\_\_\_

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## **P** CHEMISTRY: BALANCING CHEMICAL EQUATIONS WORKSHEET #7.1.7P

### **RULES FOR WRITING AND BALANCING CHEMICAL EQUATIONS:**

- A) If you are given a word equation, *translate the word equation into an unbalanced formula equation. Only formula equations can be balanced and NOT word equations!*
- B) Write the formulas for *all reactants to the left* of an arrow and *all products to the right*. Be sure that the formulas correct represent the compound or molecule of the free element (*Remember the diatomic free elements:  $H_2$ ,  $N_2$ ,  $O_2$  and the halogen group ~  $F_2$ ,  $Cl_2$ ,  $Br_2$ ,  $I_2$* )
- C) Once the formulas are correctly written, *DO NOT CHANGE THEM. USE COEFFICIENTS IN FRONT OF THE FORMULAS TO BALANCE THE EQUATION. BE SURE TO REDUCE ALL COEFFICIENTS WHEN POSSIBLE!*
- D) Begin balancing with an element that *occurs only once* on each side of the arrow.
- E) To determine the number of atoms of a given element in a formula of the equation, *MULTIPLY THE COEFFICIENT TIMES A SUBSCRIPT OF THE ELEMENT.*

1. Iron + nitrogen  $\rightarrow$  iron(II) nitride  
\_\_\_\_\_ + \_\_\_\_\_  $\rightarrow$  \_\_\_\_\_
2. Ammonia + oxygen  $\rightarrow$  water + nitrogen monoxide  
\_\_\_\_ $NH_3$  + \_\_\_\_\_  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_
3. Aluminum + hydrogen nitrate  $\rightarrow$  water + nitrogen dioxide + aluminum oxide  
 $2Al + 6HNO_3 \rightarrow$  \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_
4. Propane ( $C_3H_8$ ) + oxygen  $\rightarrow$  carbon dioxide + water  
\_\_\_\_ $C_3H_8$  + \_\_\_\_\_  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_
5. Phosphine ( $PH_3$ ) + oxygen  $\rightarrow$  water + tetraphosphorus decoxide  
\_\_\_\_ $PH_3$  + \_\_\_\_\_  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_
6. Iron (II) sulfide + oxygen  $\rightarrow$  iron (III) oxide + sulfur dioxide  
\_\_\_\_\_ + \_\_\_\_\_  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_

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