

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<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> and the halogen group ~ F<sub>2</sub>, Cl<sub>2</sub>, Br<sub>2</sub>, I<sub>2</sub>*)
- 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.*

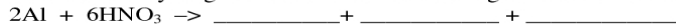
1. Iron + nitrogen → iron(II) nitride



2. Ammonia + oxygen → water + nitrogen monoxide



3. Aluminum + hydrogen nitrate → water + nitrogen dioxide + aluminum oxide



4. Propane (C<sub>3</sub>H<sub>8</sub>) + oxygen → carbon dioxide + water



5. Phosphine (PH<sub>3</sub>) + oxygen → water + tetraphosphorus decoxide



6. Iron (II) sulfide + oxygen → iron (III) oxide + sulfur dioxide



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