**Name: Period: Seat#:**

**Worksheet #3**

* **Show work for ANY math problem.**
* **Include ALL units.**
* **Use a SINGLE DIMENSIONAL ANALYSIS line method set ups for ALL conversions.**

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| 1. Write and balance the equation for the combustion of ethane (C2H6) | | |
| 1. What is the mole ratio of O2 to CO2? | 1. What is the mole ratio of CO2 to H2O? | 1. What is the mole ratio of C2H6 to H2O? |
| 1. How many moles of C2H6 are used up when 3.27 moles of H2O are produced? | | |
| 1. How many moles of CO2 are produced when 6.45 moles of O2 are used? | | |

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| 1. Write and balance the equation for the reaction of aluminum chloride and lithium sulfate. | |
| 1. What is the mole ratio of aluminum chloride to aluminum sulfate? | 1. What is the mole ratio of aluminum chloride to lithium sulfate |
| 1. How many moles of aluminum sulfate are produced in a complete reaction of 0.478 moles of lithium sulfate? | |
| 1. How many moles of lithium sulfate are used up when 1.84 moles of lithium chloride react? | |

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| 1. Write and balance: aluminum metal and hydrogen chloride reacting to form aluminum chloride and hydrogen gas. |
| 1. How many moles of aluminum metal are needed to produce 2.75 moles of aluminum chloride? |
| 1. How many GRAMS of hydrogen chloride are needed to react with 5 moles of aluminum? *Pathway: moles A 🡪 moles B 🡪 grams B  (mole ratio) (molar mass of B)* |
| 1. How many GRAMS of hydrogen gas are produced from 3.65 moles of hydrogen chloride?   *Pathway: moles A 🡪 moles B 🡪 grams B*  *(mole ratio) (molar mass of B)* |
| 1. How many GRAMS of aluminum chloride can you make from 25.5 grams of aluminum metal?   *Pathway: grams A 🡪 moles A 🡪 moles B 🡪 grams B*  *(molar mass A) (mole ratio) (molar mass B)* |
| 1. How many MOLECULES of hydrogen chloride are needed to make 17 grams of hydrogen gas?   *Pathway: grams A 🡪 moles A 🡪 moles B 🡪 molecules B*  *(molar mass A) (mole ratio) (Avo. #)* |