**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.
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| 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?
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| 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.
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| 1. How many moles of aluminum metal are needed to produce 2.75 moles of aluminum chloride?
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| 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. #)* |