STOICHIOMETRY: MOLE TO MOLE NOTES

Vocabulary:

Stoichiometry- Greek, "stoiechion" (element) and "metron" (to measure). The calculation of the amount of substances in a chemical reaction from the balanced equation.

Balance the equation and then label the reactants, products, and coefficients in the following chemical equation:

coefficients

$$\underbrace{2\ Al + 6HCl}_{\text{reactants}} \rightarrow \underbrace{2\ ALCl_3 + 3H_2}_{\text{products}}$$

Conversion factor- a numeric ratio of equal measurements used to convert quantities between different units.

Moles (mol)- the quantity of an element or compound containing 6.02×10^{23} (Avagadro's number) particles (ex. atoms, ions, etc.) of that element/compound.

Molar (Molecular) Mass- the weight (in grams) of a single mole of particles (atoms, ions, or molecules) of an element/compound.

Steps:

1. Balance the equation
2. Determine the mole to mole ratio between A and B
3. Multiply across, Divide Bottom

General Form for mole to mole conversions:

# mol A	*Ratio from coefficient mol B*	*= moles of B*
	Ratio from coefficient mol A	

ketzbook's Stoichiometry Tricks Video:

Nitrogen reacts with Hydrogen to produce a component of fertilizer called ammonia (NH_3). How many moles of Nitrogen (N_2) do you need to make 10 moles of ammonia (NH_3)?

1. Balance the equation:

   1 N_2 + *3* H_2 -> *2* NH_3
2. Determine the mole-to-mole ratio: *1:3:2*
3. *10* moles NH_3 require *1* mole N_2
4. Using the given information to solve the problem:

10 mol NH_3	*1 N_2*	*= 5 mol N_2*
	2 mol NH_3	