# STOICHIOMETRY - LECTURE NOTES

## *Homework Answers (solutions to the homework)* ( the 1's ) – *Craig*

EXAMPLE #1:

Ammonia, $NH_3$, is synthesized from hydrogen gas and nitrogen gas. If 3.8 moles of nitrogen gas reacts with hydrogen gas - how many moles of ammonia would be produced?

***Answer:***

1) WRITE A BALANCED EQUATION
2) CHANGE WHAT IS GIVEN TO MOLES
3) USE THE MOLE RATIO
4) CONVERT TO UNITS ASKED

$$\underline{3}H_2 + \underset{3.8\ mol}{N_2} \rightarrow \underset{?\ mol}{\underline{2}NH_3} \quad (1)$$

$$\frac{3.8\ mol\ N_2}{(2)\ \text{ALREADY MOLES!}} \cdot \frac{2\ mol\ NH_3}{1\ mol\ N_2\ (3)} = \boxed{7.6\ mol\ NH_3}$$

EXAMPLE #2:

Glucose. $C_6H_{12}O_6$, decomposes into its elemental components (carbon, hydrogen gas, and oxygen gas) in a decomposition reaction. Calculate the number of moles of glucose needed to form 22.4 moles of hydrogen gas.

***Answer:*** DIATOMIC -GEN OR -INE

$$\underset{?\ mol}{C_6H_{12}O_6} \rightarrow \underline{6}C + \underset{22.4\ mol}{\underline{6}H_2} + \underline{3}O_2 \quad (1)$$

ALREADY IN mol (4)

$$\frac{22.4\ mol\ H_2}{(2)\ \text{GOOD!}} \cdot \frac{1\ mol\ C_6H_{12}O_6}{6\ mol\ H_2\ (3)} = \boxed{3.73\ mol\ C_6H_{12}O_6}$$