

Ch 12  
Sec 12.2 **HW: Sec 12.2 11, 13, 14 Rev Cou 40, 6, 1, 12**  
obj: Perform stoichiometric calculations from mass and moles.

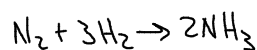
### Stoichiometric Calculations

- Involves the balanced Equation, the use of the conversion factors for moles, mass, particles + volume, and the use of Dimensional Analysis.

- All calculations are solved in the same manner.

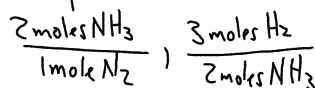
\* Moles of Given - Mole to Mole Ratio - Moles of Wanted.

- mole to mole Ratio



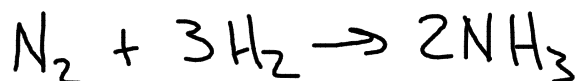
\* Is the ratio btw the mols of the wanted to the moles of the given.

\* Coefficients of the balanced equation.



12/10/2002 8:20 AM

### Mole-Mole Calculations



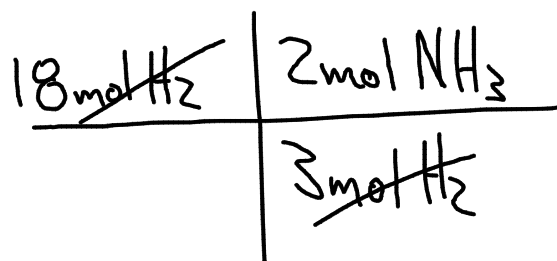
How many moles of  $\text{NH}_3$  are produced when 18 moles of  $\text{H}_2$  reacts w/ a surplus of  $\text{N}_2$

Given

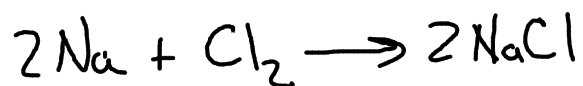
18 moles  $\text{H}_2$

Wanted

moles of  $\text{NH}_3$



Dec 12 - 11:33 AM



How many moles of  $\text{Cl}_2$  are needed to make 10 moles of  $\text{NaCl}$

Given

10 moles  $\text{NaCl}$

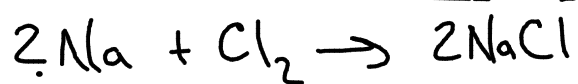
Wanted

moles  $\text{Cl}_2$

$$\frac{10 \cancel{\text{mol NaCl}} \left| \frac{1 \text{ mol Cl}_2}{2 \cancel{\text{mol NaCl}}} \right.}{}$$

Dec 12 - 11:38 AM

### Mass to Mole Calculations



How many moles of  $\text{Na}$  will react w/  
97g of  $\text{Cl}_2$ ?

Given

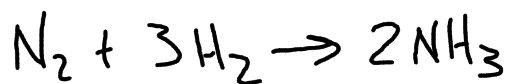
97g  $\text{Cl}_2$

Wanted

moles  $\text{Na}$

$$\frac{97 \cancel{\text{g Cl}_2} \left| \frac{1 \cancel{\text{mol Cl}_2}}{71 \cancel{\text{g Cl}_2}} \right| \frac{2 \text{ mol Na}}{1 \cancel{\text{mol Cl}_2}}}{}$$

Dec 12 - 11:42 AM



How many moles of  $\text{H}_2$  are needed to produce 100g of  $\text{NH}_3$

Given

100g  $\text{NH}_3$

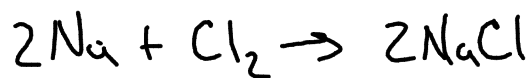
Wanted

moles  $\text{H}_2$

<del>100g <math>\text{NH}_3</math></del>	<del>1 mol <math>\text{NH}_3</math></del>	<del>3 mol <math>\text{H}_2</math></del>
	<del>17g <math>\text{NH}_3</math></del>	<del>2 mol <math>\text{NH}_3</math></del>

Dec 12 - 11:49 AM

### Mass-Mass Calculation



What mass of Na is needed to produce 210g of NaCl?

Given

210g NaCl

Wanted

mass Na

<del>210g NaCl</del>	<del>1 mol NaCl</del>	<del>2 mol Na</del>	<del>23g Na</del>
	<del>58.5g NaCl</del>	<del>2 mol NaCl</del>	<del>1 mol Na</del>

Dec 12 - 11:53 AM