

Mole Ratio Notes

- Transferring from mol of sub A to mol sub B

* Balanced rxns tell you how many moles of each sub. there are



* These #'s can now be used as ratios or conversion factors to move from 1 sub. to another

- Writing Ratios

$$- \text{N}_2/\text{H}_2 = 1/3 \text{ or } 1:3$$

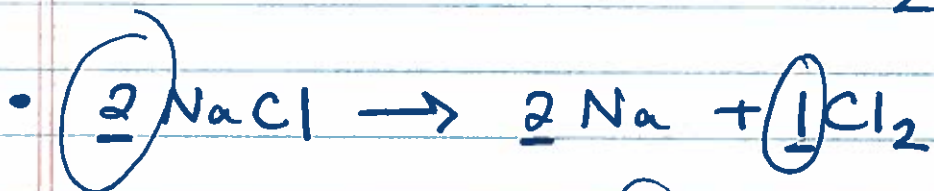
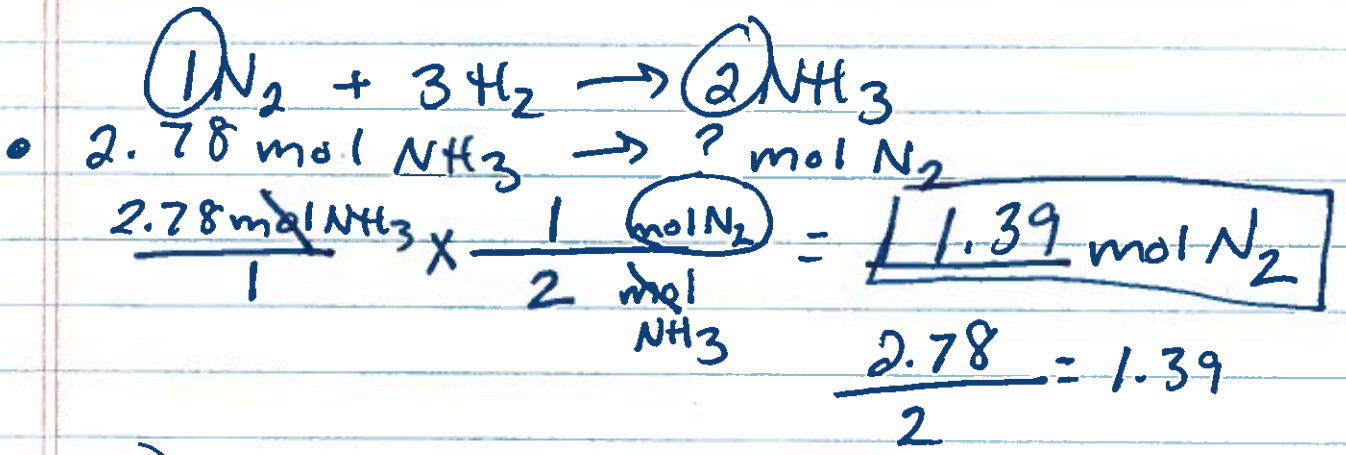
separate

- can also be written = $\frac{1 \text{ mol N}_2}{3 \text{ mol H}_2}$
top/bottom

$$- \text{N}_2/\text{NH}_3 = 1/2 \quad \text{or} \quad \frac{1 \text{ mol N}_2}{2 \text{ mol NH}_3}$$

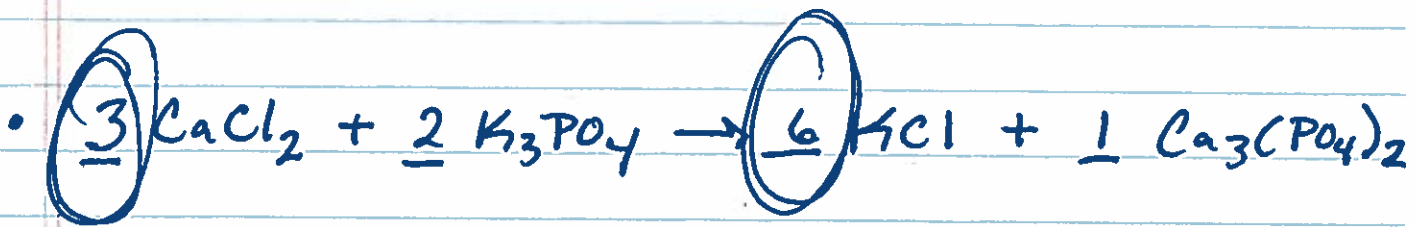
1:2

- Converting w/ Ratios
 - Start w/ given # over 1
 - Then use mol ratios to convert



- how many mol Cl_2 can be formed from 2.7 g NaCl?

$\begin{array}{r} \text{NaCl} \\ \hline \text{Na} \quad 22.990 \times 1 \\ \text{Cl} \quad 35.453 \times 1 \\ \hline 58.443 \text{g} \end{array}$	$\frac{2.7 \text{ g NaCl}}{1} \times \frac{1 \text{ mol NaCl}}{58.443 \text{ g NaCl}}$	$\times \frac{1 \text{ mol Cl}_2}{2 \text{ mol NaCl}}$	$= \frac{.023 \text{ mol Cl}_2}{2.7} = \frac{2.7}{58.443 \times 2}$
	\uparrow <u>m.m</u>	\uparrow <u>coeff.</u>	



- how many grams of KCl can be formed from 9.2 g CaCl_2 ?

$$9.2 \text{ g CaCl}_2 \times \frac{1 \text{ mol CaCl}_2}{110.984 \text{ g CaCl}_2} \times \frac{6 \text{ mol KCl}}{3 \text{ mol CaCl}_2} \times \frac{74.551 \text{ g KCl}}{1 \text{ mol KCl}} = 12.360 \text{ g KCl}$$

↑ m.m.
↑ m.m.

↑
↑

m.m.
coeff.

CaCl₂

Ca		40.078	x	1	=	40.078
Cl		35.453	x	2	=	70.906
						110.984g

KCl

K		39.098	x	1	=	39.098
Cl		35.453	x	1	=	35.453
						74.551g

work

$$\frac{(9.2 \times 6 \times 74.551)}{(110.984 \times 3)} = 12.360 \text{ g KCl}$$