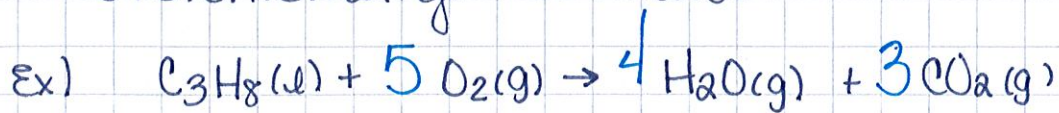


Stoichiometry Continued



How many [?] moles of steam are produced when 99.99 mol of propane (C_3H_8) burns in the presence of oxygen? GIVEN 399.96

$$\frac{99.99 \text{ mol } C_3H_8}{1 \text{ mol } C_3H_8} \times \frac{4 \text{ mol } H_2O}{1 \text{ mol } C_3H_8} = 400.0 \text{ mol } H_2O$$

How many [?] moles of carbon dioxide are produced when 99.99 moles of propane burns in the presence of oxygen? GIVEN 299.97

$$\frac{99.99 \text{ mol } C_3H_8}{1 \text{ mol } C_3H_8} \times \frac{3 \text{ mol } CO_2}{1 \text{ mol } C_3H_8} = 300.0 \text{ mol } CO_2$$

How many [?] moles of oxygen are needed to react with 9.990 moles of propane? GIVEN

$$\frac{9.990 \text{ mol } C_3H_8}{1 \text{ mol } C_3H_8} \times \frac{5 \text{ mol } O_2}{1 \text{ mol } C_3H_8} = 49.95 \text{ mol } O_2$$

Expanding Stoichiometry

Lab instruments do NOT measure in moles. They measure:

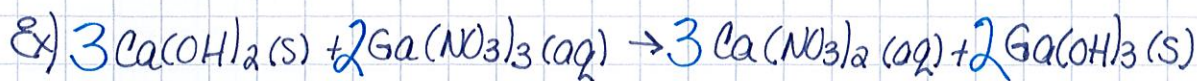
mass (g)

volume (mL or L) - if a gas @ STP

or you may have the # particles

Stoichiometry only works w/ moles!

So, you will have to convert to moles before doing stoichiometry! Or you may have to convert your answer from moles to mass or volume or particles.



How many moles of calcium nitrate are produced from the reaction of 40.00g of calcium hydroxide with excess gallium nitrate? **GIVEN**

mole map

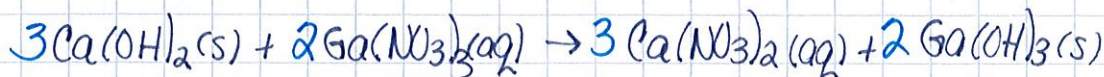
40.00g Ca(OH)_2	1 mol Ca(OH)_2	3 mol $\text{Ca(NO}_3)_2$
MM- Ca(OH)_2	74.10g Ca(OH)_2	3 mol Ca(OH)_2

stoichiometry

53g $\text{Ca(NO}_3)_2$

$\text{Ca } 1 \times 40.08\text{g} = 40.08\text{g}$
 $\text{O } 2 \times 16.00\text{g} = 32.00\text{g}$
 $\text{H } 2 \times 1.01\text{g} = 2.02\text{g}$
74.10g

What is the mass of calcium nitrate produced when 1.25 mol of gallium nitrate reacts with excess calcium hydroxide? **GIVEN**



stoichiometry

1.25 mol $\text{Ga(NO}_3)_3$	3 mol $\text{Ca(NO}_3)_2$	164.10g $\text{Ca(NO}_3)_2$
	2 mol $\text{Ga(NO}_3)_3$	1 mol $\text{Ca(NO}_3)_2$

30g $\text{Ca(NO}_3)_2$

MM

$\text{Ca } 1 \times 40.08\text{g} = 40.08\text{g}$
 $\text{N } 2 \times 14.01\text{g} = 28.02\text{g}$
 $\text{O } 6 \times 16.00\text{g} = 96.00\text{g}$
164.10g