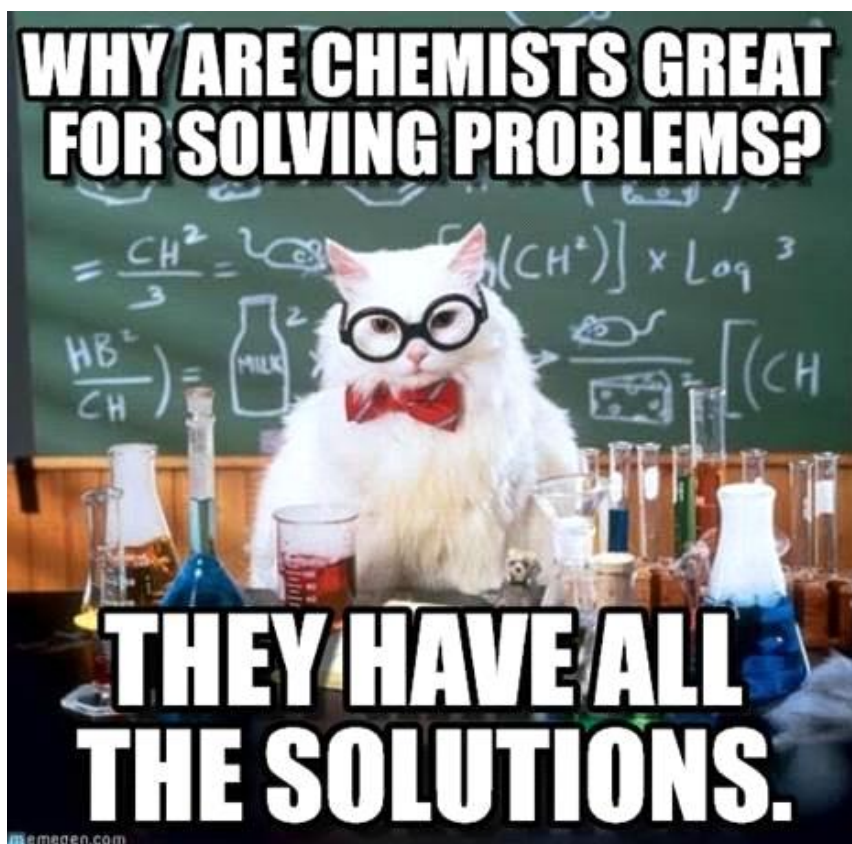


# Chemistry 11 Review

Monday, September 11, 2017 2:15 PM



## Chemistry 11 Review

### I) Mass to Moles

If you have 16.7g of NaOH, convert it to moles NaOH.

Molar Mass of NaOH = 
$$\frac{16.7 \text{ g NaOH}}{40.0 \text{ g NaOH}} \times \frac{1 \text{ mol NaOH}}{1 \text{ mol NaOH}} = 0.418 \text{ mol NaOH}$$

*Handwritten notes: "mass" with an arrow pointing to the numerator, "molar mass" with an arrow pointing to the denominator.*

How do you convert mass to moles?

*divide by molar mass*

### II) Moles to Mass

If you have 0.756 moles of HCN, what mass of HCN is present?

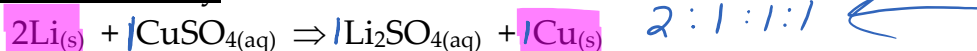
Molar Mass of HCN = 
$$0.756 \text{ mol HCN} \times \frac{27.0 \text{ g HCN}}{1 \text{ mol HCN}} = 20.4 \text{ g HCN}$$

*Handwritten notes: "molar mass" with an arrow pointing to the denominator, the result "20.4g HCN" is boxed.*

How do you convert moles to mass?

*multiply by molar mass*

### III) Stoichiometry:



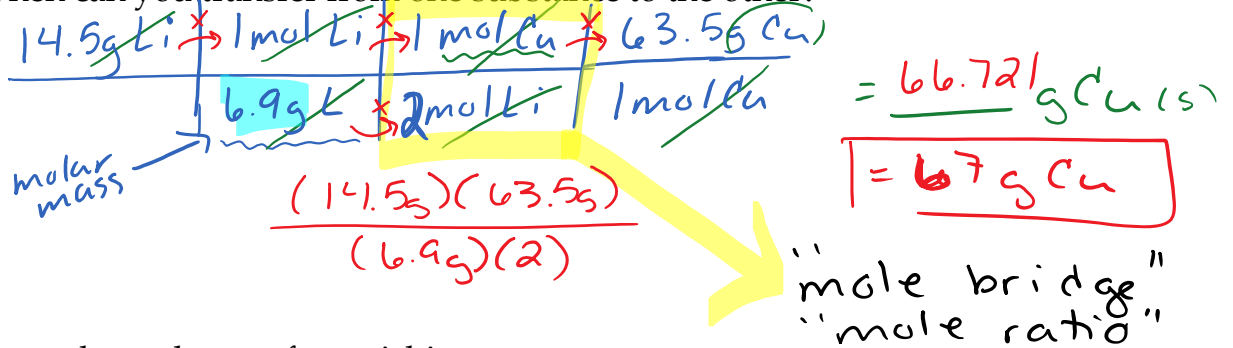
\*What mass of Cu metal is produced if 14.5g of Li metal reacts?

What should you do first? *convert to moles.*

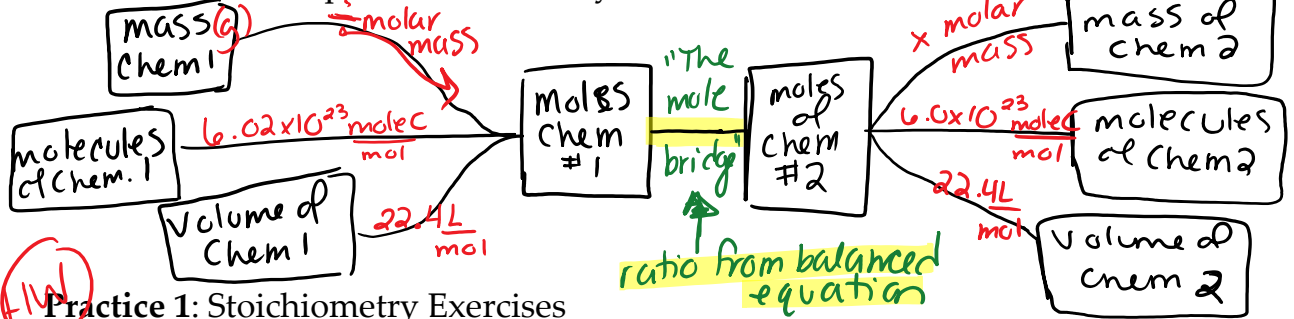
When can you transfer from one substance to the other?



When can you transfer from one substance to the other?



Draw the mole map for stoichiometry:



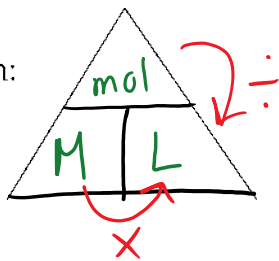
**Practice 1: Stoichiometry Exercises**

- $\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2(\text{aq}) \Rightarrow 2\text{NaCl}(\text{aq}) + \text{BaSO}_4(\text{s})$ 
  - How many grams of NaCl would be produced from 80.0g of BaCl<sub>2</sub>?
  - How many grams of BaCl<sub>2</sub> would be required to produce 65.5g of NaCl?
- When iron reacts with copper II chloride, solid copper and iron III chloride are formed. What mass of copper is produced if 0.594 moles of Fe react?

**IV) Molarity**

$$\text{Molarity (M)} = \frac{\text{moles of solute}}{\text{Litres of solution}} = \frac{\text{mol}}{\text{L}}$$

Triangle form:



What is molarity a measure of?

concentration of a solution

$$\rightarrow \left\{ \begin{array}{l} 0.10 \text{ M HCl} \\ 0.10 \frac{\text{mol}}{\text{L}} \text{ HCl} \end{array} \right\} \text{ same thing}$$

"concentration of"

What do square brackets mean: i.e.  $[\text{NO}_3^-]$  → ex. the concentration of nitrate.

**Practice 2: Molarity Exercises**

- What is the molarity of a solution made by dissolving 2.45mol of potassium

nitrate in 1.50L of solution?

2. How many moles of NaCl must be dissolved in 400.0mL of solution in order to make a 0.25M solution?
3. What is the volume if 0.555mol of MgS makes a 2.00M solution?
4. Find [NaOH] when 0.32mol NaOH is dissolved in  $5.00 \times 10^2$  mL of solution?