**Molarity**

**Molar concentration**

**AKA Molarity**

**AKA Moles of solute per total liters of solution**

**M = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

A soln of 1 mol/L is also read as a “1 molar” soln.

**1 M 1 mol/L 1 mol/dm3**

It is important to distinguish moles from molarity.

Molarity is a measurement of concentration of a soln.

Moles are a measure of the amount of substance present at a given time.

**Stoichiometry and Molarity**

**CV = n**

**Where** C = concentration in mol/L

 V = volume in L

 n = moles

e.g. What is the molarity when 2.5 g of NaCl dissolved to make 35.0 mL of soln?

e.g. How many mL of a 3.0 mol/L KOH soln will contain 0.28 g of solute?

**And now for the stoichiometry!**

**Instead of starting with g of A or particles of A you may have a volume of a concentration of a solution of A.**

 **Zn(s) + 2 HCl(aq)** 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If 40.0 mL of a 6.0 mol/L hydrochloric acid solution reacts with sufficient zinc, how many grams of hydrogen will form?

To completely react 10.00 g of Zn, how many mL of a 1.5 M HCl solution will be required?

**Remember—all conversion factors can be inversed.**

**And, of course, we can turn the problem into a limiting reagent one:**

If 500. mL of a 1.25 mol/L HCl solution reacts with 5.00 g of Zn:

i) What mass of hydrogen will form?

ii) What is the limiting reagent?

iii) What amount of the excess reagent is left over?