Molarity – Study Guide

*section 3.3 in OpenStax*

**Solution Concentration**

The component in a mixture present as the major component is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The minor component is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

An aqueous solution contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as the solvent.

Molarity is a unit of concentration.

 Molarity =

**Molarity in Calculations**

When you are given molarity (*M*), use it as a conversion factor.

Write the two possible conversion factors that can be made from 2.50 *M* NaOH.

Practice Problem: Calculate the number of moles of sodium hydroxide in 50.0 mL of 2.50 *M* NaOH.

 *(ans: 0.125 mol NaOH)*

**Dilution Calculations**

When you begin with an existing solution (a stock solution) and add solvent, it is diluted to a new, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (lower or higher) concentration solution.

Write the equation used for dilution calculations:

Note that you can use mL in this equation.

NEVER use this equation when a reaction is occurring. This equation is ONLY for dilution where solvent is added and no reaction is occurring.

Practice Problem: Calculate the volume of 12.0 *M* HCl needed to make 500.0 mL of 4.50 *M* HCl.

 *(ans: 188 mL)*

**End of Chapter 3 Practice Problems**

#47, 49, 51, 53, 59, 61

For detailed solutions to these problems, go to the [OpenStax website](https://openstaxcollege.org/textbooks/chemistry/resources) and download the “Student Answer and Solution Guide.”