Solution Stoichiometry

Concentration:
Most commonly molarity or molar concentration designated by M.

\[ M = \text{moles of solute/liter of solution} \]

The number of moles in a given volume of solution is given by

\[ \text{moles} = \text{molarity} \times \text{volume of solution} \]

The molar quantity can then be used for stoichiometric calculations involving reactions in solution.

In order to calculate a new concentration upon dilution of a solution use the fact that the number of moles of solute before dilution is the same as that after dilution.

\[ V_{\text{before}} \times M_{\text{before}} = V_{\text{after}} \times M_{\text{after}} \]

Note that the volume required for a given dilution is given by
\[ V_{\text{added}} = V_{\text{after}} - V_{\text{before}} \]