An acid-base titration is a neutralization reaction that is performed in the lab in order to determine an unknown concentration of acid or base. The moles of acid will equal the moles of base at the equivalence point. Here's how to perform the calculation to find your unknown.

For example, this is the steps if titrating hydrochloric acid with sodium hydroxide:

HCl + NaOH → NaCl + H2O

You can see from the equation there is a 1:1 molar ratio between HCl and NaOH. If you know that titrating 50.00 ml of an HCl solution requires 25.00 ml of 1.00 M NaOH, you can calculate the concentration of hydrochloric acid, [HCl]. Based on the molar ratio between HCl and NaOH you know that at the equivalence point:

moles HCl = moles NaOH

MHCl x volumeHCl = MNaOH x volumeNaOH

MHCl = MNaOH x volumeNaOH / volumeHCl

MHCl = 25.00 ml x 1.00 M / 50.00 ml

MHCl = 0.50 M HCl