AP Chemistry Daily Videos

8.7 pH and pKA

Video #1

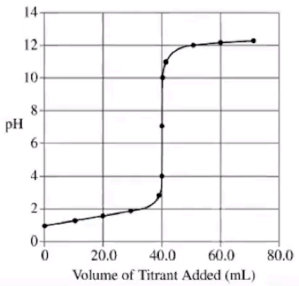
1. **How can concentrations of an acid and its conjugate base be predicted using pH of the solution and pKa of the acid?**

2. **Evaluate your work.**

A solution of 0.100 *M* HCl and a solution of 0.100 *M* NaOH are prepared. A 40.0 mL sample of one of the solutions is added to a beaker and then titrated with the other solution. A pH electrode is used to obtain the data that are plotted in the titration curve shown at the right.

(a) Identify the solution that was initially added to the beaker. Explain your reasoning.
(b) On the titration curve at the right, circle the point that corresponds to the equivalence point.
(c) At the equivalence point, how many moles of titrant have been added?
(d) The same titration is to be performed again, this time using an indicator. Use the information in the table at the right to select the best indicator for the titration. Explain your choice.
(e) What is the difference between the equivalence point of a titration and the end point of a titration?
(f) Sketch the titration curve that would result if the solutions in the beaker and burette were reversed (i.e., if 40.0 mL of the solution used in the burette in the previous titration were titrated with the solution that was in the beaker).

Source: AP® Classroom



Indicator	pH Range of Color Change
Methyl Violet	0 - 1.6
Methyl Red	4 - 6
Alizarin yellow	10 - 12