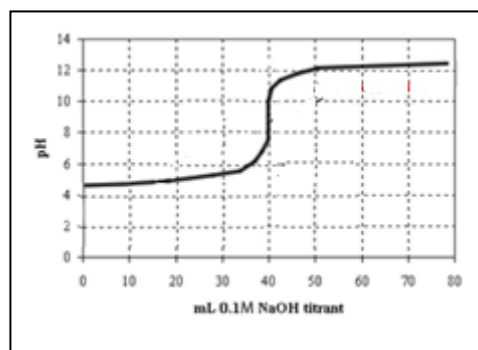


Lesson 3b – dilution before titration and indicators.

A monoprotic acid solution, whose concentration is unknown, is titrated with a 0.100 M NaOH solution. The Ph curve for this titration is shown on the right. A 20.00 mL aliquot is taken from the original bottle of this monoprotic acid and placed in a 200 mL volumetric flask and made to the mark using distilled water. A 25.00 mL was transferred from the volumetric flask to a 100mL conical flask and titrated to the end point. An average titre of 40.00 mL was obtained



- Write the balanced overall equation for the reaction taking place in the conical flask between the weak monoprotic(HA) acid and the NaOH.
- Find the mol of the NaOH in the average titre
- Find the mol of the monoprotic acid in the conical flask.
- Find the mol of the monoprotic acid in the volumetric flask.
- Find the concentration in mol/L in the original undiluted sample of the monoprotic acid
- Is the monoprotic acid a weak or strong acid? Explain.
- What is an ideal indicator to use in this titration? Justify your reasoning.
- The chemist decided to use methyl red as the indicator. How does this choice of indicator impact the average titre?

Name of indicator	pH range
methyl orange	3.1-4.4
methyl red	4.4-6.2
bromothymol blue	6.0-7.6
phenolphthalein	8.3-10.0

Unpack the information by drawing a flow diagram.

20.00mL
original
sample



200mL volumetric
flask



25.00mL
aliquot is
taken



An average titre of
40.00 mL of a
0.100 M NaOH.

