



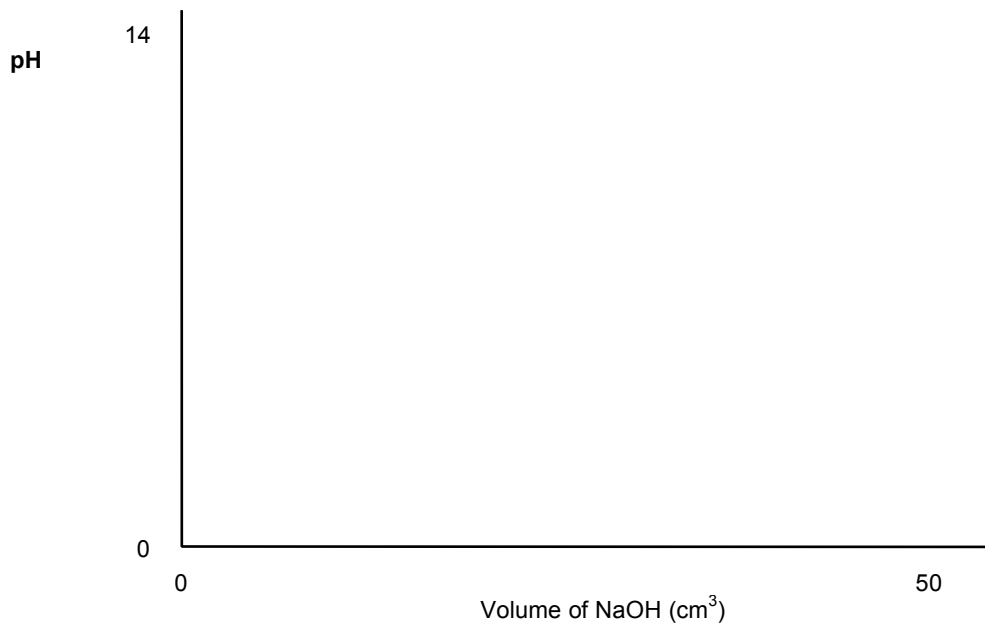
1 Find the pH of 0.20 mol dm^{-3} ethanoic acid. ($\text{pK}_a = 4.76$)

.....
.....

2 Find the pH of a mixture of 20.0 cm^3 of 0.20 mol dm^{-3} ethanoic acid and 50.0 cm^3 0.10 mol dm^{-3} sodium hydroxide. (pK_a for ethanoic acid = 4.76)

.....
.....
.....
.....
.....
.....
.....
.....

3 Sketch the pH curve to show how the pH changes as 50.0 cm^3 0.10 mol dm^{-3} sodium hydroxide is added to 20.0 cm^3 of 0.20 mol dm^{-3} ethanoic acid. Mark on the volume of sodium hydroxide needed for equivalence.



4 What is an equivalence point?

5 Estimate the pH at the equivalence point.

6 Identify a suitable indicator that changes colour at the equivalence point.