Problem: You use 25mL of 6.0M NaOH to neutralize 100mL of an unknown acid in a titration experiment. What is the molarity of the acid? Show work.

Solution: The shortened ionic chemical equation of neutralization: $H^+ + OH^- = H_2O$;

The quantities of moles of H^+ and OH^- are equal: $\nu(H^+)=\nu(OH^-)$; quantity can be obtained from the following expression for concentration $c=\nu/V$: $\nu=c*V$ (where c – concentration; V – volume).

So, $c(H^+)*V(H^+)=c(OH^-)*V(OH^-)$; $c(H^+)= c(OH^-)*V(OH^-)/V(H^+)=6.0*25/100=1.5$ (M).

Answer: $c(H^+)=1.5$ M