Titration.

May 11th '11.

$[\ ] = \frac{\text{mol}}{\text{volume}}$

Question

In a titration, a $25.0\,cm^3$ sample of nitric acid HNO_3 reacted with $20.0\,cm^3$ of sodium hydroxide NaOH of concentration 0.4M

(a) Equation $HNO_3 + NaOH \rightarrow H_2O + NaNO_3$

(b) How much NaOH? $\frac{20}{1000} \times 0.4\,M = 0.008\,mol$ (mol/dm³)

(c) How much HNO_3? 0.008 mol

(d) What was $[HNO_3]$? $\frac{0.008\,mol \times 1000\,cm^3}{25.0\,cm} = 0.32\,M$

Question 2

A student has an unknown 25 cm^3 sample of sodium hydroxide (NaOH) solution. She finds it reacts completely with 22.4 cm^3 of 0.5M sulphuric acid (H_2SO_4). What was [NaOH]?

① Mols of H_2SO_4 $\frac{22.4}{1000} \times 0.5 = 0.0112$ md

② Equation $H_2SO_4 + 2NaOH \rightarrow Na_2SO_4 + 2H_2O$

③ Mols of NaOH 0.0224 md

④ [NaOH] $0.0224 \times \frac{1000}{25} = 0.896$ M

md/dm^3

$[HCl]$ 0.5M

$HCl + NaOH \longrightarrow H_2O + NaCl$

$[NaOH]$?

① Moles of HCl ?

② Moles of NaOH ?

③ $[NaOH]$?