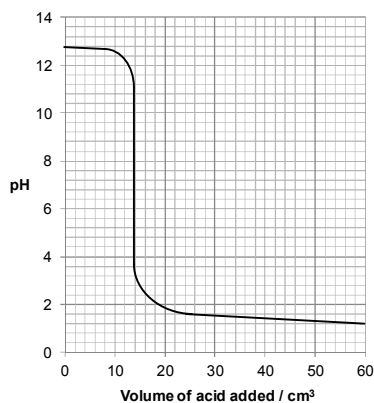




# STARTER FOR 10!!!

## 3. Acids and bases answers

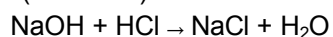
### 3.4. Acid-base titrations



Titration number: 1 2 3 4

Suitable indicator: phenolphthalein  
or methyl orange

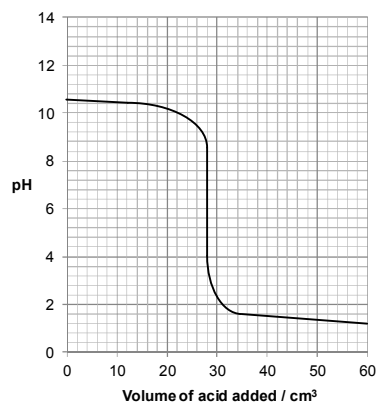
Conc. of acid (if needed):



Moles in 25 cm<sup>3</sup> 0.100 mol dm<sup>-3</sup> NaOH =  $2.5 \times 10^{-3}$

Volume of HCl needed for neutralisation = 14 cm<sup>3</sup>

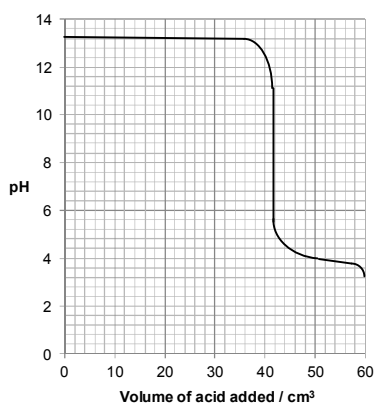
Conc. of HCl =  $2.5 \times 10^{-3} / 0.014 \text{ dm}^3 = \underline{0.18 \text{ mol dm}^{-3}}$



Titration number: 1 2 3 4

Suitable indicator: methyl orange

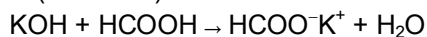
Conc. of acid (if needed): N/A



Titration number: 1 2 3 4

Suitable indicator: phenolphthalein

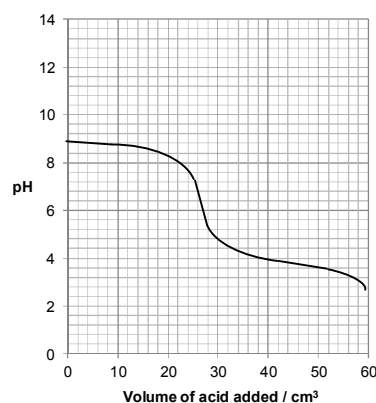
Conc. of acid (if needed):



Moles in 25 cm<sup>3</sup> 0.100 mol dm<sup>-3</sup> KOH =  $2.5 \times 10^{-3}$

Volume of HCOOH needed for neutralisation = 42 cm<sup>3</sup>

Conc. of HCOOH =  $2.5 \times 10^{-3} / 0.042 \text{ dm}^3 = \underline{0.060 \text{ mol dm}^{-3}}$



Titration number: 1 2 3 4

Suitable indicator: none

Conc. of acid (if needed): N/A

(1 mark for correct identification of each titration,  
1 mark for each suitable indicator named,  
1 mark for each calculation of acid concentration)