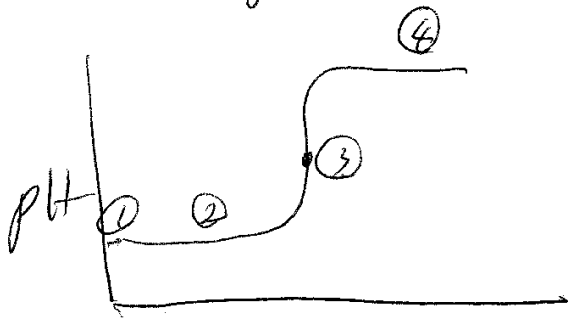
titration strong acid – strong base

(you are adding strong base to a strong acid solution)



region ① – before added any base

$[H^+] = [H_3O^+] =$ [concentration of the strong base]

region ② – after added some base before equivalence point

$$[H_3O^+] = \frac{[\#\text{ moles acid} - \#\text{ moles base}]}{\left[(\#\text{ml acid} + \#\text{ml base}) \times \left(\frac{\text{l}}{1000\text{ml}}\right)\right]}$$

Point ② at equivalence point

$[H_3O^+] = 1.0 \times 10^{-7}$

region 4 - after equivalence point

$$[OH^-] = \frac{\left[\#\text{moles base} - \#\text{moles acid}\right]}{\left[\left(\#\text{ml acid} + \#\text{ml base}\right) \times \frac{\text{L}}{1000\text{ml}}\right]}$$

to get # moles acid

$$\#\text{moles acid} = \text{ml of acid used} \times \left(\frac{\#\text{moles acid}}{1000\text{ml}}\right)$$

this is the molarity # for acid

to get # moles base

this is molarity # for base

$$\#\text{ moles base} = \text{ml of base added} \times \left(\frac{\#\text{ moles base}}{1000\text{ ml}}\right)$$

to get volume at equivalence point

volume should be given

$$M_{acid} V_{acid} = M_{base} V_{base}$$

- M_{acid}: molarity # for acid
- M_{base}: molarity # for base
- V_{base}: solve for this volume at equivalence point

should do at beginning

You should understand this titration problem. I can ask for just 1 (to 2) of the regions because if I ask you to the whole thing - it would take you ~ 30 min to an hour to complete the problem. (too long for quiz or exam)