**Dougherty Valley HS AP Chemistry**

**S-80**

**Acid Base Reactions**

**Quick Check #5**

**Name: Date: Period: Seat #:**

🞎 **pH at the Starting Point of a Titration**

What is the pH of a 25.0 mL sample of 0.200 M HCl?

🞎 **How Much Base is Needed to Neutralize an Acid**

How many mL of 0.100 M NaOH solution is needed to titrate a 25.0 mL sample of a 0.200 M HCl.

🞎 **pH at the Endpoint of a Titration**

|  |  |  |
| --- | --- | --- |
| **Acid** | **Base** | **pH at the Endpoint (circle choice)** |
| strong | strong | less than 7 | 7 | more than 7 |
| strong | weak | less than 7 | 7 | more than 7 |
| weak | strong | less than 7 | 7 | more than 7 |

🞎 **pH Beyond the Endpoint of a Titration**

Calculate the pH of a solution made by adding 30.0 mL of 0.100 M NaOH to 10.0 mL of 0.200 M HCl.

***Problem:***

Calculate the pH of a solution made by adding 30.0 mL of 0.100 M NaOH to 10.0 mL of 0.200 M HCl.

***Flow Map:***

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Δ mL  to L | 🢡 | Moles OH | 🢡 | Moles  H+ | 🢡 | XS moles of OH  or H+ | 🢡 | Add Volumes | 🢡 | [H+] or [OH] | 🢡 | pH or pOH |

V⋅M = mol V⋅M = mol

Step 1: Change your volumes to Liters.

Vol NaOH = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Vol HCl = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Step 2: Calculate moles of OH. *(Note: volume x molarity = moles)*

Step 3: Calculate moles of H+.

Step 4: Subtract moles of OH and moles H+ to determine excess moles.

*(Note: You are forming H2O until H+ or OH runs out. Be sure to label your answer as H+ or OH.)*

Step 5: Calculate the total volume (in Liters).

Step 6: Determine the concentration of H+ or OH (whichever is in excess).  *(Note: Molarity = moles/Liters)*

Step 7: Determine the pH or pOH. *(Note: This may involve one or two steps. State the equation used.)*