

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

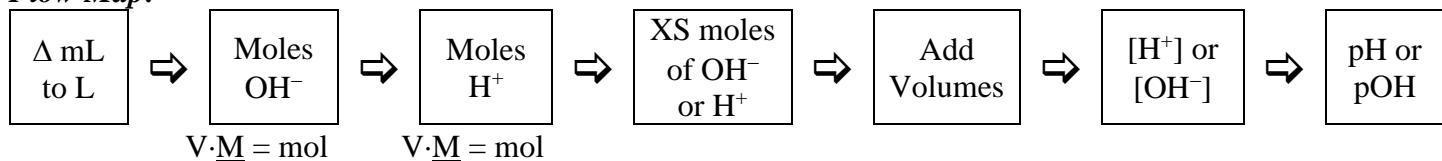
**pH Beyond the Endpoint of a Titration**

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:**



Step 1: Change your volumes to Liters.

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

Step 2: Calculate moles of OH<sup>-</sup>. (Note: *volume x molarity = moles*)

Step 3: Calculate moles of H<sup>+</sup>.

Step 4: Subtract moles of OH<sup>-</sup> and moles H<sup>+</sup> to determine excess moles.

(Note: *You are forming H<sub>2</sub>O until H<sup>+</sup> or OH<sup>-</sup> runs out. Be sure to label your answer as H<sup>+</sup> or OH<sup>-</sup>.)*)

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

Step 6: Determine the concentration of H<sup>+</sup> or OH<sup>-</sup> (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.*)