

Neutralization & Titrations



Neutralization Reactions

- _____ – acid + base → a salt + water
- Neutralization reactions are just a special type of double replacement reactions

Neutralization Reactions

- Write the equations for the following neutralization reactions
- Acetic acid and ammonium hydroxide
- Nitric acid and cesium hydroxide

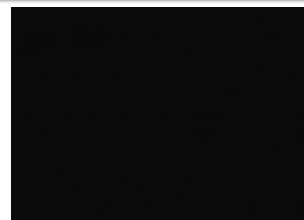
Acid base Titrations

- _____ – a method for determining the concentration of a solution by reacting a volume of a solution of known concentration with a volume of an unknown concentration

Steps for a titration

1. A measured volume of the unknown concentration of the acid is placed in a beaker with a few drops of indicator or a pH meter
2. A buret is filled with the titrating solution of known concentration. This is called the standard solution
3. A measured volume of the standard solution is slowly added to the beaker of unknown concentration
4. This continues until the equivalence point is reached
 - _____ – point where the # moles H^+ = # moles of OH^-

Titration



Acid-Base Titrations

Titration

- You can use a pH meter or an indicator
- Indicator – chemical dye whose color changes according to the pH
- If using an indicator, the point at which the solution changes color is called the end point

Titration

- What is the molarity of a nitric acid solution if 43.33 ml of 0.100M KOH is needed to neutralize 20.00 ml of an unknown concentration of HNO_3 ?

Titration

- Calculate the concentration of H_2SO_4 if 50.0 ml of 0.1 M NaOH is added to 25.0 ml of an unknown concentration of H_2SO_4 .

Buffers

- _____ - solution that resists changes in pH when small amounts of acid or base are added
- A buffer is a mixture of a weak acid and its conjugate base
- Or
- A weak base and its conjugate acid
- _____ - the amount of acid or base that the buffer can neutralize before the pH begins to change

Buffers

