Titration Calculations

1. **10.0** cm³ of a solution of potassium hydroxide was titrated with a **0.10** M/dm³ solution of hydrochloric acid. **13.5** cm³ of the acid was required for neutralisation. Calculate the concentration of the potassium hydroxide solution.

$$\mathrm{HCI} + \mathrm{KOH} \rightarrow \mathrm{KCI} + \mathrm{H_2O}$$
 HCI KOH

 Concentration (mol/dm³)
 0.1

 Volume (cm³)
 13.5

 Volume (dm³)
 13.5 / 1000 = 0

 Moles
 $0.1 \times 0.0135 = 0$

 Ratio
 1

| 0.1 | 0.00135 / 0.01 = | |
|------------------------|-------------------|--|
| 13.5 | 10 | |
| 13.5 / 1000 = 0.0135 | 10 / 1000 = 0.010 | |
| 0.1 x 0.0135 = 0.00135 | 0.00135 | |
| 1 | 1 | |

Answer:

2. 25.00cm³ of 0.100M/dm³ NaOH is needed to titrate 55.00cm³ of a solution of hydrochloric acid. Calculate the concentration of the acid.

$$HCI + NaOH \rightarrow NaCI + H_2O$$

| | HCI | NaOH |
|-------------------------|-----|------|
| Concentration (mol/dm³) | | |
| Volume (cm³) | | |
| Volume (dm³) | | |
| Moles | | |
| Ratio | | |

Answer:

| 3. | 6.25cm ³ of 0.125M/dm ³ NaOH is needed to titrate 25.00cm ³ of a solution of hydrochloric acid. Calculate the concentration of the acid. | | | | |
|---|---|--------------------------------------|--|--|--|
| | addit carearate the concentration | $HCI + NaOH \rightarrow NaCI + H_2O$ | | | |
| | | | | | |
| | Concentration (mol/dm³) | | | | |
| | | | | | |
| | Volume (cm³) | | | | |
| | Volume (dm³) | | | | |
| | volume (am) | | | | |
| | Moles | | | | |
| | Ratio | | | | |
| | | | | | |
| | Answer: | | | | |
| | | | | | |
| 4. 25.00cm³ of 0.2M/dm³ NaOH is needed to titrate 12.50cm³ of a solution of sulphu Calculate the concentration of the acid. | | | | | |
| | H ₂ SO ₄ + 2NaOH \rightarrow Na ₂ SO ₄ + 2H ₂ O | | | | |
| | $\Pi_2 3O_4 + 2 \text{NaOH} \rightarrow \text{Na}_2 3O_4 + 2 \Pi_2 O$ | | | | |
| | | | | | |
| | | | | | |
| | Concentration (mol/dm³) | | | | |
| | \\\(\alpha\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | | | | |
| | Volume (cm³) | | | | |
| | Volume (dm³) | | | | |
| | | | | | |
| | Moles | | | | |
| | Ratio | | | | |

Answer: