



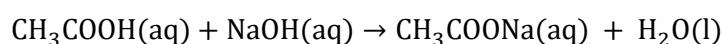
Scaffolding titration calculations

Learning objectives

- 1 Explore the table method for structuring titration calculations
- 2 Identify values for concentrations and volumes of solution and correctly identify which reactant these values apply to
- 3 Use $n = \frac{cV}{1000}$ to carry out calculations involving moles (n), concentration (in mol/dm^3) and volume (in cm^3)

Questions

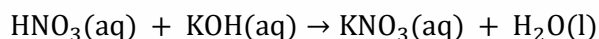
1. Ethanoic acid is neutralised by sodium hydroxide, as shown by the equation.



12.50 cm^3 of ethanoic acid neutralised 25.00 cm^3 of sodium hydroxide of concentration 0.22 mol/dm^3 . Calculate the concentration of the ethanoic acid in mol/dm^3 .

	CH₃COOH	NaOH
Concentration (mol/dm^3)		
Volume (cm^3)		
n (moles)		
Ratio		

2. 30.0 cm^3 of potassium hydroxide solution neutralised 25.0 cm^3 of dilute nitric acid. The concentration of the dilute nitric acid was 2.0 mol/dm^3 .

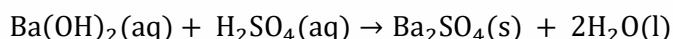


Calculate the concentration of the potassium hydroxide solution in mol/dm^3 .

	HNO₃	KOH
Concentration (mol/dm^3)		
Volume (cm^3)		
n (moles)		
Ratio		



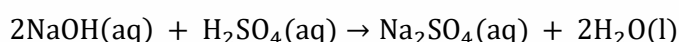
3. Barium sulfate can be made by adding barium hydroxide solution to dilute sulfuric acid. The balanced chemical equation for the reaction is



25.0 cm³ of 0.55 mol/dm³ sulfuric acid was reacted with 10.0 cm³ of barium hydroxide. Calculate the concentration of the barium hydroxide.

	Ba(OH) ₂	H ₂ SO ₄
Concentration (mol/dm ³)		
Volume (cm ³)		
n (moles)		
Ratio		

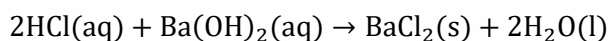
4. A student titrated 25.0 cm³ portions of dilute sulfuric acid with a 0.110 mol/dm³ sodium hydroxide solution. The equation for the reaction is



22.15 cm³ of sodium hydroxide was needed. Calculate the concentration of the sulfuric acid in mol/dm³.

	H ₂ SO ₄	NaOH
Concentration (mol/dm ³)		
Volume (cm ³)		
n (moles)		
Ratio		

5. Barium chloride can be made by adding barium hydroxide solution to dilute hydrochloric acid. The balanced chemical equation for the reaction is



25.0 cm³ of 1.0 mol/dm³ hydrochloric acid was reacted with 15.0 cm³ of barium hydroxide. Calculate the concentration of the barium hydroxide.

	HCl	Ba(OH) ₂
Concentration (mol/dm ³)		
Volume (cm ³)		
n (moles)		
Ratio		