

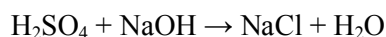
Worksheet 1.9

End-of-chapter test

Use the A_r values in Data sheet 7 (Periodic Table) to answer these questions. You will also need to know the molar volume of gas at room conditions, which can be found in Data sheet 1.

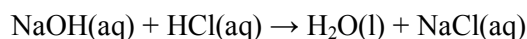
Give all your answers to 3 significant figures.

- 1 The reaction between NaOH and H_2SO_4 can be written as:



In such a reaction, 18.0 cm^3 of sulfuric acid was neutralised by 12.0 cm^3 of $0.0400 \text{ mol dm}^{-3}$ sodium hydroxide.

- a What was the volume, in dm^3 of:
- the acid?
 - the alkali? [2]
- b Calculate the number of moles of alkali. [1]
- c Calculate the number of moles of acid and then its concentration. [2]
- 2 a 1.80 dm^3 of hydrogen chloride gas was dissolved in 100 cm^3 of water.
- How many moles of hydrogen chloride gas were present? [1]
 - What was the concentration of the hydrochloric acid formed? [2]
- b 25.0 cm^3 of the acid was then titrated against sodium hydroxide of concentration $0.250 \text{ mol dm}^{-3}$ to form NaCl and water:



- How many moles of acid were used? [2]
 - Calculate the volume of sodium hydroxide used. [4]
- 3 2.40 dm^3 of chlorine gas was reacted with sodium hydroxide solution. The reaction taking place was as follows:



- How many moles of Cl_2 reacted? [1]
- What mass of NaOCl was formed? [2]
- If the concentration of the NaOH was 1.00 mol dm^{-3} , what volume of sodium hydroxide solution was required? [2]