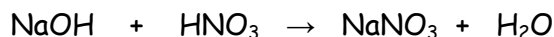
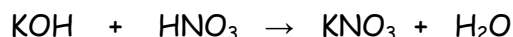


SOLUTION CALCULATIONS

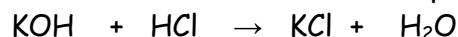
1. Calculate the volume of 0.50 mol dm^{-3} sodium hydroxide solution which is needed to exactly neutralise 50.00 cm^3 0.20 mol dm^{-3} nitric acid solution.



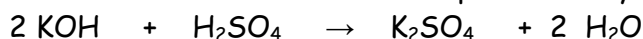
- Find the number of moles of nitric acid present
 - How many moles of sodium hydroxide will react with the nitric acid?
 - Deduce the volume of the sodium hydroxide solution.
2. Calculate the volume of 0.20 mol dm^{-3} potassium hydroxide solution which is needed to exactly neutralise 10.00 cm^3 0.45 mol dm^{-3} nitric acid solution.



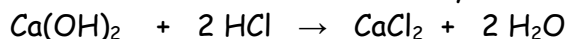
- Find the number of moles of nitric acid present
 - How many moles of potassium hydroxide will react with the nitric acid?
 - Deduce the volume of the potassium hydroxide solution.
3. Calculate the concentration in mol dm^{-3} of hydrochloric acid solution if 10.00 cm^3 of the acid exactly neutralises 25.00 cm^3 of 0.5 mol dm^{-3} potassium hydroxide solution



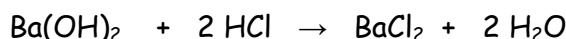
- Find the number of moles of potassium hydroxide present
 - How many moles of hydrochloric acid will react with the potassium hydroxide?
 - Deduce the concentration of the hydrochloric acid solution.
4. Calculate the concentration in mol dm^{-3} of sulphuric acid solution if 25.00 cm^3 of the acid exactly neutralises 25.00 cm^3 of 0.5 mol dm^{-3} potassium hydroxide solution



- Find the number of moles of potassium hydroxide present
 - How many moles of sulphuric acid will react with the potassium hydroxide?
 - Deduce the concentration of the sulphuric acid solution.
5. Calculate the volume of 0.01 mol dm^{-3} hydrochloric acid solution which is needed to exactly neutralise 25.00 cm^3 0.02 mol dm^{-3} calcium hydroxide solution.

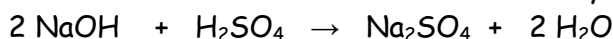


- Find the number of moles of calcium hydroxide present
 - How many moles of hydrochloric acid will react with the calcium hydroxide?
 - Deduce the volume of the hydrochloric acid solution.
6. Calculate the concentration in mol dm^{-3} of hydrochloric acid solution if 100.00 cm^3 of the acid exactly neutralises 50.00 cm^3 of 0.05 mol dm^{-3} barium hydroxide solution



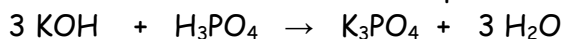
- Find the number of moles of barium hydroxide present
- How many moles of hydrochloric acid will react with the barium hydroxide?
- Deduce the concentration of the hydrochloric acid solution.

7. Calculate the concentration in mol dm⁻³ of sulphuric acid solution if 50.00 cm³ of the acid exactly neutralises 25.00 cm³ of 0.04 mol dm⁻³ sodium hydroxide solution



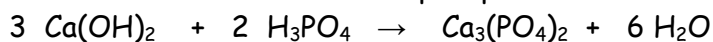
- Find the number of moles of sodium hydroxide present
- How many moles of sulphuric acid will react with the sodium hydroxide?
- Deduce the concentration of the sulphuric acid solution.

8. Calculate the concentration in mol dm⁻³ of phosphoric acid solution if 25.00 cm³ of the acid exactly neutralises 75.00 cm³ of 0.06 mol dm⁻³ potassium hydroxide solution



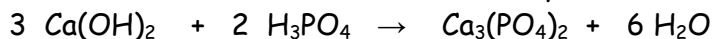
- Find the number of moles of potassium hydroxide present
- How many moles of phosphoric will react with the potassium hydroxide
- Deduce the concentration of the phosphoric acid solution.

9. Calculate the volume of 0.01 mol dm⁻³ calcium hydroxide solution which is needed to exactly neutralise 50.00 cm³ 0.025 mol dm⁻³ phosphoric acid solution.



- Find the number of moles of phosphoric acid present
- How many moles of calcium hydroxide will react with the phosphoric acid?
- Deduce the volume of the calcium hydroxide solution.

10. Calculate the volume of 0.015 mol dm⁻³ phosphoric acid solution which is needed to exactly neutralise 25.00 cm³ 0.024 mol dm⁻³ calcium hydroxide solution.



- Find the number of moles of calcium hydroxide present
- How many moles of phosphoric acid will react with the calcium hydroxide?
- Deduce the volume of the phosphoric acid solution.