Solution Stoichiometry Practice

1. What is the concentration of a KOH(aq) solution if 12.8 mL of this solution is required to react with 25.0 mL of 0.110 mol/L H2SO4(aq)?
2. What volume of 0.125 mol/L NaOH(aq) is required to react completely with 15.0 mL of 0.100 mol/L Al2(SO4)3(aq)?
3. In a chemical analysis, a 10.0 mL sample of H3PO4)aq) was reacted with 18.2 mL of 0.259 mol/L NaOH(aq). Calculate the concentration of the phosphoric acid.
4. The concentration of magnesium ions from magnesium chloride in sea water was analyzed and found to be 50.0 mmol/L. What volume of 0.200 mol/L sodium hydroxide solution would be needed in an industrial process to precipitate all of the magnesium ions from 1000.0 KL of sea water?
5. Ammonium sulfate fertilizer is manufactured by having sulfuric acid react with ammonia. In a laboratory study of this process, 50.0 mL of sulfuric acid reacts with 24.4 mL of a 2.20 mol/L ammonia solution to produce the ammonium sulfate solution. From this evidence, calculate the concentration of the sulfuric acid at this stage of the process.
6. Slake lime can be added to an aluminum sulfate solution in a water treatment plant to clarify the water. Fine particles in the water stick to the precipitate produced. Calculate the volume of 0.0250 mol/L calcium hydroxide solution required to react completely with 25.0 mL of 0.125 mol/L aluminum sulfate solution.
7. As part of a chemical analysis, a technician determines the concentration of a sulfuric acid solution. In the experiment, a 10.00 mL sample of sulfuric acid reacts completely with 15.9 mL of 0.150 mol/L potassium hydroxide. Calculate the concentration of the sulfuric acid.