

MOLARITY STOICHIOMETRY PROBLEMS
(Chemistry 11)

1. What volume of 0.556M hydrochloric acid is needed to react with 25.4mL of 0.458M sodium hydroxide? **Answer: 0.0206L NaOH**
2. What volume, in mL, of 0.114M sulfuric acid is required to react with 32.2mL of 0.122M sodium hydroxide? **Answer: 17.2mL H₂SO₄**
3. What volume of 0.337M potassium hydroxide provides enough solute to react with the sulfuric acid in 18.6mL of 0.156M sulfuric acid? **Answer: 0.172L KOH**
4. Hydrochloric acid reacts with sodium carbonate to produce sodium chloride, carbon dioxide gas, and water. What volume of 0.224M hydrochloric acid neutralizes the sodium carbonate in 24.2mL of 0.284M sodium carbonate? **Answer: 0.0614mL HCl**
5. What is the molarity of a sulfuric acid solution if 15.46mL is neutralized by 33.48mL of 0.1048M sodium hydroxide? **Answer: 0.1135M H₂SO₄**
6. What volume of 3.00M hydrochloric acid is needed to react with 16.8g of sodium bicarbonate? The reaction is as follows:
$$\text{HCl} + \text{NaHCO}_3 \longrightarrow \text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$$
Answer: 0.0644L HCl
7. What volume of 4.40M sulfuric acid is needed to react completely with 100.g aluminum? **Answer: 1.26L H₂SO₄**
8. A 40.0mL sample of sodium sulfate solution is reacted with barium chloride. If the mass of the product (barium sulfate), is 1.756g, what is the molarity of the sodium sulfate solution? **Answer: 0.189M Na₂SO₄**