

Titration Practice Worksheet

$$M_1V_1 = M_2V_2$$

1. If it takes 54 mL of 0.75 M NaOH to neutralize 125 mL of an HCl solution, what is the concentration of the HCl?
2. If it takes 25 mL of 0.05 M HCl to neutralize 345 mL of NaOH solution, what is the concentration of the NaOH solution?
3. If it takes 50 mL of 0.5 M KOH solution to completely neutralize 125 mL of nitric acid solution (HNO_3), what is the concentration of the nitric acid solution?
4. What volume of 0.50 M KOH would be needed to neutralize 20.0 mL of 0.75 M HNO_3 solution?
5. If 35 mL of 0.10 M acid solution is neutralized by 21.8 mL of a basic solution, what is the molarity of the base?
6. If I take 0.5 L of 0.35 M HCl to neutralize 1.75 L of a base with unknown concentration, what is the concentration of the base?
7. If it takes 150 mL of 1.50 M NaOH to neutralize 60 mL of an acid with unknown concentration, what is the concentration of the acid?
8. How many milliliters of 0.75 M HNO_3 will be needed to neutralized 300 mL of 3.0 M KOH?
9. How many liters of 0.65 M NaOH will be required to neutralize 4.5 liters of 1.75 M HCl?

10. It took 34 mL of a 0.05 M basic solution to neutralize 120 mL of an acid solution with an unknown concentration. For this titration, what was the concentration of the acid?
11. 350 mL of 0.75 M acid solution is required to titrate 450 mL of a base solution with unknown concentration. For this titration, what was the concentration of the base?
12. A 15.5 mL sample of 0.215 M KOH solution required 21.2 mL of acetic acid solution in a titration experiment. Calculate the molarity of the acetic acid solution.
13. A titration requires 50.0 mL of a 0.100 M NaOH solution to reach an end point with 10.0 mL of acetic acid. Determine the concentration of the acetic acid solution.
14. Determine the concentration of an unknown acid solution when 17.3 mL of this solution was used in titrating 31.2 mL of a 0.125 M NaOH.
15. Determine the molarity of a sodium hydroxide solution when 45.1 mL of a 0.100 M HCl solution was used in titrating 31.0 mL of the base.
16. What volume of 0.275 M hydrochloric acid solution neutralizes 36.4 mL of 0.150 M sodium hydroxide solution?
17. Find the volume of 0.150 M HI solution required to titrate 25.0 mL of 0.100 M NaOH.
18. Suppose you titrate 25.00 mL sample of vinegar with 17.62 mL of a standardized 0.1060 M solution of NaOH. What is the molarity of the acetic acid in the vinegar?