

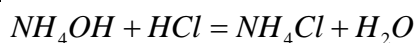
Answer on Question #50450, Chemistry, Other

Task:

A titration of 15.0 cm³ of household ammonia, NH₃, required 38.70 cm³ of 8.0 M HCl. Calculate the molarity of the ammonia.

What volume of 5.0 M HNO₃ is required to neutralize 25.00 cm³ of a 2.0 M NaOH solution.

Answer:



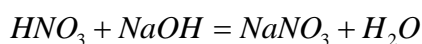
$$C_M = \frac{V}{V} \quad v = C_M \cdot V$$

$$v(NH_4OH) = v(HCl)$$

$$1) \quad C_M(NH_4OH) \cdot V(NH_4OH) = C_M(HCl) \cdot V(HCl)$$

$$C_M(NH_4OH) = \frac{C_M(HCl) \cdot V(HCl)}{V(NH_4OH)}$$

$$C_M(NH_4OH) = \frac{8 \cdot 0.0387}{0.015} = 20.64 M$$



$$C_M = \frac{V}{V} \quad v = C_M \cdot V$$

$$v(HNO_3) = v(NaOH)$$

$$2) \quad C_M(HNO_3) \cdot V(HNO_3) = C_M(NaOH) \cdot V(NaOH)$$

$$V(HNO_3) = \frac{C_M(NaOH) \cdot V(NaOH)}{C_M(HNO_3)}$$

$$V(HNO_3) = \frac{2 \cdot 0.025}{5} = 0.01 l = 10 cm^3$$