

Answer on question #69730

A 100.0 mL sample of 0.1 M NH₃ is titrated with 0.1 M HNO₃. What is the pH after the addition of 150 mL of HNO₃. K_b of NH₃: 1.8 x 10⁻⁵.

Solution:

1. We found concentration of ions OH⁻ in initial solution:

$$-pK(NH_3) - C(NH_3) \quad pK(NH_3) \quad \lg(1 \quad)$$

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$$[OH^-] \quad , [OH^-] \quad (mol/l)$$

2. We found concentration of ions OH⁻ and H⁺ in final solution:

$$[OH^-] \quad \text{_____} \quad (mol/l)$$

$$[H^+] \quad \text{_____} \quad 06(mol/l)$$

3. Find pH:

$$[H^+] > [OH^-]$$

(excess)

$$[H^+] \quad \text{_____} \quad 05946(mol/l)$$

Answer: 1.23.