

1. pH of the 0.0350 M hypochlorous acid solution is:

$$pH = \frac{1}{2}(-\lg K_a - \lg C_a^0) = \frac{1}{2}(-\lg 3,5 \cdot 10^{-5} - \lg 0,0350) = 2,96$$

2. Acid concentration after 15.00 mL of NaOH have been added:

$$C_a = \frac{C_a^0 \cdot V_a - C_t \cdot V_t}{V_a + V_t} = \frac{0,0350 \cdot 50,00 - 0,0105 \cdot 15,00}{50,00 + 15,00} = 0,0245 \text{ M}$$

3. NaClO concentration is:

$$C_s = \frac{C_t \cdot V_t}{V_a + V_t} = \frac{0,0105 \cdot 15,00}{50,00 + 15,00} = 0,0024 \text{ M}$$

5. pH of the acid solution after 15.00 mL of titrant have been added is:

$$pH = -\lg K_a - \lg \frac{C_a}{C_s} = 3,45$$

Answer: 3,45.