

## Quiz 5.4 – Titration

Name: Key

## Question 1 (1 points)

25.00 ml of HCl with unknown concentration were titrated to the end-point with 37.21 ml of 0.150 M NaOH. Find the initial [HCl]

$$\frac{C_A V_A}{V_A} = \frac{C_B V_B}{V_B} \quad \frac{C_A \cdot 25.00 \text{ ml}}{1} = \frac{0.150 \text{ M} \cdot 37.21 \text{ ml}}{1}$$

$$C_A = 0.223 \text{ M}$$

## Question 2 (2 points)

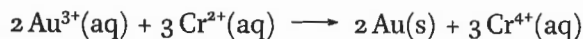
25.00 ml of Ba(OH)<sub>2</sub> with unknown concentration were titrated to the end-point with 42.85 ml of 0.350 M HNO<sub>3</sub>. Find the initial [Ba(OH)<sub>2</sub>]

$$\frac{C_A V_A}{V_A} = \frac{C_B V_B}{V_B} \quad \frac{0.350 \text{ M} \cdot 42.85 \text{ ml}}{2} = \frac{C_B \cdot 25.00 \text{ ml}}{1}$$

$$C_B = 0.300 \text{ M}$$

## Question 3 (2 points)

Color-changing indicators are available for redox reactions as well as for acid-base reactions. Consider the following reaction:



50.00 ml of Au(NO<sub>3</sub>)<sub>3</sub> with unknown concentration were titrated to the end-point with 28.63 ml of 0.125 M Cr(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub>. Find the initial [Au(NO<sub>3</sub>)<sub>3</sub>]

$$\frac{C_A V_A}{V_A} = \frac{C_B V_B}{V_B} \quad \frac{C_A \cdot 50.00 \text{ ml}}{2} = \frac{0.125 \text{ M} \cdot 28.63 \text{ ml}}{3}$$

$$C_A = 0.0777 \text{ M}$$