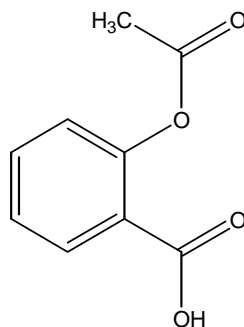


Problem Set #5
Due 3/31/11

1. A 25.0 mL solution of 0.0650 M calcium chloride is titrated with 0.01625 M sodium sulfate. Calculate $[\text{Ca}^{+2}]$ when the following amounts of sodium sulfate have been added: 0.000, 50.00, 100.00, 125.00 mL.
2. 8.65 grams of aspirin (acetylsalicylic acid) ($K_a = 3.24 \times 10^{-4}$),



is dissolved in 0.750 L water. The resulting solution is titrated with 1.00 M NaOH. Find the pH at the following values of added base: 0.00, 10.0, 24.0, 38.0, 48.0, 55.0 mL.

3. 49.00 grams of Ciprofloxacin HCl (Cipro) (mol. wt = 331.1, $K_{a1} = 1.00 \times 10^{-6}$, $K_{a2} = 1.58 \times 10^{-9}$) is dissolved in 1.000 L water. The resulting solution is titrated with 1.000 M NaOH. Find the pH at the following values of added base: 0.00, 36.0, 74.0, 142.0, 148.0, 186.0, 222.0, 267.0, 296.0, 325.0 mL.
4. Harris Chapter 26, Problem 18
5. Harris Chapter 10, Problem 17
6. Harris Chapter 10, Problem 25

Suggested/Review Problems:

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|----------------------------------|----------------------------------|
| 1. Harris Chapter 26, Problem 12 | 5. Harris Chapter 10, Problem 21 |
| 2. Harris Chapter 26, Problem 41 | 6. Harris Chapter 10, Problem 28 |
| 3. Harris Chapter 10, Problem 6 | 7. Harris Chapter 10, Problem 30 |
| 4. Harris Chapter 10, Problem 10 | 8. Harris Chapter 10, Problem 31 |