

Week 8 Homework
Acid-Base Titrations

1. You are titrating a 25.00 mL solution of 2,4-dinitrophenol (25.60 mM) with a 40.00 mM NaOH titrant. Determine the pH of the solution after the addition of the volume of titrant indicated in the table below.

Vol. Titrant Added	Solution pH
0.00 mL	
5.68 mL	
14.92 mL	
16.00 mL	
18.50 mL	

2. A 35.00 mL solution of disodium phthalate (10.25 mM) is titrated with 25.00 mM HCl. Determine the pH of the solution after the addition of the volume of titrant indicated in the table below.

Vol. Titrant Added	Solution pH
0.00 mL	
4.82 mL	
14.35 mL	
18.00 mL	
20.65 mL	
28.70 mL	

3. A 40.00 mL solution contains each of the following bases at their respective concentrations. The solution is titrated with a 0.200 M solution of HNO_3 . Determine the pH of the solution at the titration volumes listed in the table below.
- 8.00 mM ethylamine
 - 6.00 mM sodium glutamine (sodium salt of glutamine)
 - 5.00 mM sodium succinate

Vol. Titrant Added	Solution pH
0.00 mL	
0.98 mL	
1.87 mL	
3.15 mL	
4.68 mL	
5.25 mL	