Name _____ Block: _____ Date: _____

Chemistry 12

Acid & Base Titrations

1. 13.45 mL of 0.200 M NaOH is required to titrate 25.0 mL of a solution which is known to have HCl. Calculate the original [HCl]. Show all your steps.

2. 13.45 mL of 0.200 M HCl is required to titrate 25.0 mL of a solution which is known to have $Ba(OH)_2$. Calculate the original [$Ba(OH)_2$]. Show all your steps.

3. 13.45 mL of 0.200 M $Sr(OH)_2$ is required to titrate 25.0 mL of a solution which is known to have HNO_3. Calculate the original [HNO_3]. Show all your steps.

4. What volume of 0.100 M NaOH would be required to titrate 35.0 mL of a 0.231M solution of $H_2C_2O_4$. Show all your steps.

5. Consider the following 0.100 M solutions:

   I. HF II. HBr III. H_2SO_4

   The equivalence point is reached when 10.00 mL of 0.100 M NaOH has been added to 10.00 mL of solutions

   A. II only B. I and II only C. II and III only D. I, II and III

6. a) Write the *balanced formula equation* for the titration between sulphurous acid and potassium hydroxide.

   _____

   b) Write the *balanced net-ionic equation* for the titration between sulphurous acid and potassium hydroxide. (1 mark)

   _____

7. Given the following data table:

Beaker	***Volume***	***Contents***
1	10.0 mL	0.1 M $Ba(OH)_2$
2	15.0 mL	0.2 M NH_3
3	20.0 mL	0.05 M KOH
4	50.0 mL	0.2 M NaOH

   a) Which beaker would require the greatest volume of 0.1M HCl for complete neutralization?

b) What volume of 0.1M HCl would be needed for the neutralization in (a)?

c) Which beaker would require the least volume of 0.1M HCl for complete neutralization?

d) What volume of 0.1M HCl would be needed for the neutralization in (c)?

8. Calculate the mass of NaOH which is required to neutralize 15.00 mL of 0.350 M H_2SO_4.

9. When a 0.1 M strong base titrates a 0.1 M weak monoprotic acid, it takes (*less/more/the same*) _____ volume of the base as it would to titrate a 0.1 M strong monoprotic acid.