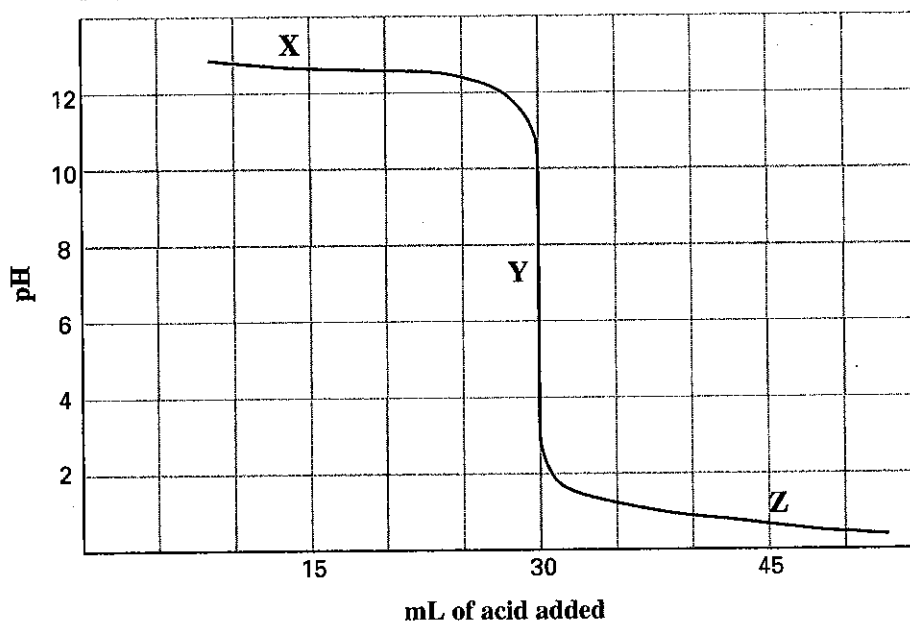


CHAPTER 16 REVIEW***Acid-Base Titration and pH*****SECTION 16-2****SHORT ANSWER** Answer the following questions in the space provided.

1. Below is a pH curve from an acid-base titration. On it are labeled three points: X, Y, and Z.

- _____ a. Which point represents the equivalence point?
- _____ b. At which point is there excess acid in the system?
- _____ c. At which point is there excess base in the system?
- _____ d. If the base solution is 0.250 M, how many moles of OH^- are consumed at the end point of the titration?

Acid-Base Titration Curve**PROBLEMS** Write the answer on the line to the left. Show all your work in the space provided.

2. A standardized solution of 0.065 M HCl is titrated with a saturated solution of calcium hydroxide to determine its molarity and its solubility. It takes 25.0 mL of base to neutralize 10.0 mL of the acid.

- a. Write the balanced molecular equation for this neutralization reaction.

SECTION 16-2 continued

- _____ b. Determine the molarity of the $\text{Ca}(\text{OH})_2$ solution.
- _____ c. Based on your answer to part b, calculate the solubility of the base in grams per liter of solution.
- 3.** It is possible to carry out a titration without any indicator present. Instead, a pH probe is immersed in a beaker containing the solution of unknown molarity. The solution of known molarity is slowly added from a buret. Use the titration data below to answer the following questions:
- Volume of $\text{KOH}(\text{aq})$ in the beaker = 30.0 mL
- Molarity of $\text{HCl}(\text{aq})$ in the burette = 0.50 M
- At the instant the pH falls from 10 to 4, 27.8 mL of acid have been added to the KOH in the beaker.
- _____ a. What is the mole ratio of chemical equivalents in this system?
- _____ b. Calculate the molarity of the KOH solution based on the above data.