

Name _____

Titration Virtual Lab

The acid-base titration computer simulation to accompany this tutorial is located at URL:

http://group.chem.iastate.edu/Greenbowe/sections/projectfolder/flashfiles/stoichiometry/a_b_phtitr.html

For this tutorial you will complete a strong acid vs. strong base titration experiment online. As you proceed, watch the pH at various points during the titration. You need to do the calculations.

Procedure:

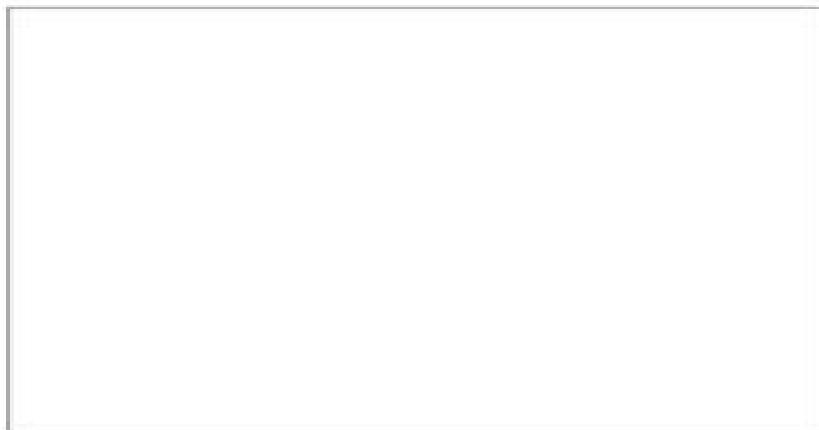
1. Enter the link above.
Or find the link on my 40S Chem page (mrstorie.wikispaces.com) entitled *Titration Virtual Lab*.
2. Select "Strong Acid vs. Strong Base."
3. Fill the burette with base.
4. Select **HNO₃** as the acid and **KOH** as the base.
The computer will automatically assign a molarity and a volume for the acid.

Record the molarity and volume (convert to litres) for the acid:

_____ M _____ L

5. Select the indicator phenolphthalein.
6. Click on graph. That is the expected graph of *pH* vs. *volume of base added*.

Make a detailed sketch of the graph below and label the *equivalence point* on the curve:



Virtual Acid Base Ph Titration Packet Answers

Thomas Lee Gummo



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Ph Scale And Acid-base Titrations/standardization Postma Roberts Hollenberg, James M. Postma, Julian Roberts, J. Leland Hollenberg, 2000-01-15 **Instructor's Manual** Brian F. Woodfield, Matthew C. Asplund, 2006 NEW Click here to visit the Virtual ChemLab Frequently Asked Questions FAQ document This Instructor's Lab Manual Workbook is similar to the Student Lab Manual Workbook and additionally contains an overview of the full capabilities of the Site License version of Virtual ChemLab installation instructions and the answers for the laboratory assignments provided in the student laboratory workbook This product is available within Virtual ChemLab General Chemistry Instructor Lab Manual Workbook and Student CD Combo Package v2 5 0 13 228010 8 Valuepack and or should be ordered in conjunction with Virtual ChemLab General Chemistry Instructor Site License CD v2 5 0 13 185749 5 *The Effect of Adding Guided-inquiry to Laboratory Activities in an Acid Base Unit in a High School Chemistry Classroom* Kendon Douglas Smith, 2010 **PH, Buffers and Acid-base Titrations** LaMotte Chemical Products Co. Educational Products Division, 197? *PH Measurement and Titration* G. Mattock, 1961 **An On-line Acid-base Titration Applet in the Generic Tutorial System for the Sciences Project** Thomas Lee Gummo, 2002 The purpose of this Master's Project was to develop an Acid Base Titration Simulator It was also to be a part of the California State University San Bernardino's GTSS Generic Tutorial System for the Sciences project The main benefit is that students will be able to conduct titration experiments over the Internet without being in the laboratory and without costly equipment or dangerous chemicals Instructors at the high school and college level can demonstrate the key principles of titration **Aqueous Acid-base Equilibria and Titrations** Robert De Levie, 1999 This book will give students a thorough grounding in pH and associated equilibria material absolutely fundamental to the understanding of many aspects of chemistry It is in addition a fresh and modern approach to a topic all too often taught in an outmoded way This book uses new theoretical developments which have led to more generalized approaches to equilibrium problems these approaches are often simpler than the approximations which they replace Acid base problems are readily addressed in terms of the proton condition a convenient amalgam of the mass and charge constraints of the chemical system considered The graphical approach of Bjerrum Hagg and Sillen is used to illustrate the orders of magnitude of the concentrations of the various species involved in chemical equilibria Based on these concentrations the proton condition can usually be simplified often leading directly to the value of the pH In the description of acid base titrations a general master equation is developed It provides a continuous and complete description of the entire titration curve which can then be used for computer based comparison with experimental data Graphical estimates of the steepness of titration curves are also developed from which the practicality of a given titration can be anticipated Activity effects are described in detail including their effect on titration curves The discussion emphasizes the distinction between equilibrium constants and electrometric pH measurements which are subject to activity corrections and balance equations and spectroscopic pH measurements which are not Finally an entire

chapter is devoted to what the pH meter measures and to the experimental and theoretical uncertainties involved

Advanced Ph Measurement and Control Gregory K. McMillan, Robert A. Cameron, 2004-10-30 *Acid Base Titrations* Shah Purvesh, 2015-08-04 In Acid Base Titrations the author discussed various acid base titration It gives some basic concept of acid base titration The analysis of acid base titration discussed in this book It also covers Titration of poplyprotic acid and mixture of acids Titration of a Polybasic base with a Strong Acid pH transition range for an indicator titration of salts Differential Alkali titration are discussed in simplest type **General Theory of Acid-base Titration** Pat Richard Pondy, 1949 **Acid-Base Titration** Bird, 1995-01-01 **Acid/Base Titrations** Michael O'Brien, 1999 *Working with Chem Separate* Wink, 1999-12-01 *A Computer Model for Acid-base Titration Equivalence Point Determination* John Michael Parr, 1976

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Table of Contents Virtual Acid Base Ph Titration Packet Answers

1. Understanding the eBook Virtual Acid Base Ph Titration Packet Answers
 - The Rise of Digital Reading Virtual Acid Base Ph Titration Packet Answers
 - Advantages of eBooks Over Traditional Books
2. Identifying Virtual Acid Base Ph Titration Packet Answers
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Virtual Acid Base Ph Titration Packet Answers
 - User-Friendly Interface
4. Exploring eBook Recommendations from Virtual Acid Base Ph Titration Packet Answers
 - Personalized Recommendations
 - Virtual Acid Base Ph Titration Packet Answers User Reviews and Ratings
 - Virtual Acid Base Ph Titration Packet Answers and Bestseller Lists
5. Accessing Virtual Acid Base Ph Titration Packet Answers Free and Paid eBooks

- Virtual Acid Base Ph Titration Packet Answers Public Domain eBooks
 - Virtual Acid Base Ph Titration Packet Answers eBook Subscription Services
 - Virtual Acid Base Ph Titration Packet Answers Budget-Friendly Options
6. Navigating Virtual Acid Base Ph Titration Packet Answers eBook Formats
- ePub, PDF, MOBI, and More
 - Virtual Acid Base Ph Titration Packet Answers Compatibility with Devices
 - Virtual Acid Base Ph Titration Packet Answers Enhanced eBook Features
7. Enhancing Your Reading Experience
- Adjustable Fonts and Text Sizes of Virtual Acid Base Ph Titration Packet Answers
 - Highlighting and Note-Taking Virtual Acid Base Ph Titration Packet Answers
 - Interactive Elements Virtual Acid Base Ph Titration Packet Answers
8. Staying Engaged with Virtual Acid Base Ph Titration Packet Answers
- Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Virtual Acid Base Ph Titration Packet Answers
9. Balancing eBooks and Physical Books Virtual Acid Base Ph Titration Packet Answers
- Benefits of a Digital Library
 - Creating a Diverse Reading Collection Virtual Acid Base Ph Titration Packet Answers
10. Overcoming Reading Challenges
- Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Virtual Acid Base Ph Titration Packet Answers
- Setting Reading Goals Virtual Acid Base Ph Titration Packet Answers
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Virtual Acid Base Ph Titration Packet Answers
- Fact-Checking eBook Content of Virtual Acid Base Ph Titration Packet Answers
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
- Utilizing eBooks for Skill Development

- Exploring Educational eBooks

14. Embracing eBook Trends

- Integration of Multimedia Elements
- Interactive and Gamified eBooks

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