

# CHEMISTRY

## Chemistry Showandtell

</res/showandtell/SntChemistry/welcome.html>

</res/showandtell/SntChemistry/open.source.sampler.sequence>

# Chemistry Show-N-Tell

The focus here is on university-level Chemistry, assessment resources.

(To locate authors of high-school Chemistry resources please see </res/msu/thedump/chemistry/>.)

If you are looking for ideas about how to code particular types of problem have a look at some selected examples by expanding the sequence </res/showandtell/SntChemistry/open.source.sampler.sequence>.

## Pockets of Chemistry Problems

The table below lists some specific areas in the repository where clusters of Chemistry resources may be found.

This table is, naturally, a work-in-progress and, as such, may not be totally up-to-date.

Chemistry authors, whose substantive work is not currently listed, should [contact us](#) to have their resources included.

If your work is incorrectly or inadequately represented below, please send us details, so that we may update this page.

Also, please let us know of specific chemistry resources (problems or sequences) which you have published "open source" and which may warrant inclusion elsewhere in this domain as *good working examples*.

For problems published as "open source", you may copy the code to your own construction space, modify the problem to fit your needs, and publish the modified version. **If you do so, please give the URL of the original problem, and acknowledge the original author, in the metadata of the revised problem.**

If you use any of these problems in your course, **please, at the end of the course, run the Statistics on all enrolled students so that your usage data will be included as dynamic metadata of the problem.**

Location	Maintainer	Description
<a href="/res/fh-emen/Chemietechnik">/res/fh-emen/Chemietechnik</a>	Reinhard Heuermann	170+ Problems: Chemietechnik (auf Deutsch) -- Chemical engineering (in German).
<a href="/res/fsu/AnalChemLib/">/res/fsu/AnalChemLib/</a>	Robley Light	30+ Analytical chemistry problems arranged according to topic.
<a href="/res/fsu/GeneralChemLib/">/res/fsu/GeneralChemLib/</a>	Robley Light	100+ General chemistry/PreLab problems arranged according to topic.
<a href="/res/fsu/OrganicChemistryLib/">/res/fsu/OrganicChemistryLib/</a>	Robley Light	140+ Organic chemistry problems for a one-semester organic course, arranged according to topic.
<a href="/res/fsu/rlight/">/res/fsu/rlight/</a>	Robley Light	38 Problems arranged by topic. Includes 25 "Public" problems for drill or demo purposes. Also there are 12 "open source" problems on stoichiometry. Check out the "demonstration problems" for interesting examples, including a flash simulation of a titration.
<a href="/res/fsu/silberbergLib/">/res/fsu/silberbergLib/</a>	Robley Light and Hon Kie Ng	400+ Problems restricted to users authorized by the publisher (McGraw Hill). Problems were originally coded by Larry Brown (TAMU) for CAPA and were translated into LON-CAPA for the publisher by Robley Light and Hon Kie Ng. Contact McGraw Hill for permission to access.
<a href="/res/hope/chemistry/">/res/hope/chemistry/</a>	Michael Pikaart	230+ General Chemistry problems.
<a href="/res/huji/guy/">/res/huji/guy/</a>	Guy Ashkenazi	200+ General and Physical Chemistry problems arranged according to topic. Most of the problems are "open source". However the status of the huji server is in question.
<a href="/res/msu/hunter/ChemLibrary/">/res/msu/hunter/ChemLibrary/</a>	Paul Hunter	350+ General chemistry problems arranged according to topic. Most of these problems were translated from old CAPA problems.
<a href="/res/msu/lira/">/res/msu/lira/</a>	Carl Lira	70+ Problems in Chemical Engineering.
<a href="/res/msu/severink/">/res/msu/severink/</a>	Kathryn G. Severin	180+ Problems in General, Analytical and Physical Chemistry, Instrumental Analysis and Spectroscopy. Arranged according to course/subject.
<a href="/res/msu/thedump/chemistry/">/res/msu/thedump/chemistry/</a>	THEDUMP	"Teachers Helping Everyone Develop User Materials & Problems". Topical sequences of problems for highschool chemistry. Arranged by topic.
<a href="/res/nau/jim/">/res/nau/jim/</a>	Jim Maxka	400+ Problems in introductory, general and <b>organic</b> chemistry, as well as lab assignments and simulations. Arranged according to course.
<a href="/res/nau/jkn/">/res/nau/jkn/</a>	John Nauman	Problems relating specifically to the General Chemistry laboratory courses at NAU.
<a href="/res/nau/brandon/">/res/nau/brandon/</a>	Brandon Cruickshank	40+ Problems in General Chemistry.

Location	Maintainer	Description
<a href="#">/res/fh- emden/Chemietechnik</a>	Reinhard Heuermann	170+ Problems: Chemietechnik (auf Deutsch) -- Chemical engineering (in German).
<a href="#">/res/fsu/AnalChemLib/</a>	Robley Light	30+ Analytical chemistry problems arranged according to topic.
<a href="#">/res/fsu /GeneralChemLib/</a>	Robley Light	100+ General chemistry/PreLab problems arranged according to topic.
<a href="#">/res/fsu /OrganicChemistryLib/</a>	Robley Light	140+ Organic chemistry problems for a one-semester organic course, arranged according to topic.
<a href="#">/res/fsu/rlight/</a>	Robley Light	38 Problems arranged by topic. Includes 25 "Public" problems for drill or demo purposes. Also there are 12 "open source" problems on stoichiometry. Check out the "demonstration problems" for interesting examples, including a flash simulation of a titration.
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<a href="#">/res/msu/thedump /chemistry/</a>	THEDUMP	"Teachers Helping Everyone Develop User Materials & Problems". Topical sequences of problems for highschool chemistry. Arranged by topic.
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<a href="#">/res/nau/jkn/</a>	John Nauman	Problems relating specifically to the General Chemistry laboratory courses at NAU.
<a href="#">/res/nau/brandon/</a>	Brandon Cruickshank	40+ Problems in General Chemistry.
<a href="#">/res/sc/JMarcero/</a>	Jason Marcero	250+ problems in Introductory and General Chemistry.
<a href="#">/res/sfu /ChemistryTopics/</a>	Ray Batchelor	Published <b>sequences</b> of well-used Chemistry problems, sorted by topics. These sequences should contain entirely "System wide" resources, with the exception of the sequences of Exam questions, which are restricted by custom rights. Contact <a href="#">the author</a> if you are interested in using some of the exam questions.
<a href="#">/res/sfu/batchelo/</a>	Ray Batchelor	500+ Problems for Introductory and General Chemistry, including Lecture Homework and Pre-Lab problems. Categorized by course names: Chem111 Intro Chem; Chem121 General Chem I; Chem122 General Chem II. Many of these problems date from the days of "CAPA", but were ported to LON-CAPA and enhanced/elaborated. The older (extensively-used) problems are generally "closed source". Many of these problems are included in the topical sequences at <a href="#">/res/sfu/ChemistryTopics/</a> .
<a href="#">/res/sfu/hanlan/Lab/</a>	Lee Hanlan	HTML files and associated images for an Introductory Chemistry Laboratory Course.
<a href="#">/res/sfu/chem122 /problems/</a>	Ray Batchelor	A few more problems for General Chemistry II. Translated from CAPA. Topics include: entropy, free energy, electrochemistry.
<a href="#">/res/sfu/chem215/</a>	Ray Batchelor	130+ Problems for a first Analytical Chemistry Course.
<a href="#">/res/sfu/chem360 /problems/</a>	Ray Batchelor	30+ Problems for Physical Chemistry (2nd or 3rd year) translated from CAPA.
<a href="#">/res/tccfl/walkerj/</a>	Joi Walker	90+ Problems in General and Organic Chemistry.
<a href="#">/res/uiuc/cyerkes/</a>	Christine Yerkes	250+ Problems in General, Physical and Organic Chemistry.
<a href="#">/res/uiuc/marville/</a>	Kelly Marville	70+ Problems in General Chemistry.
<a href="#">/res/uiuc/crray/</a>	Christian Ray	100+ Problems in General Chemistry.
<a href="#">/res/vcu/sshunnic/</a>	Sally Hunnicutt	1090+ Problems in General Chemistry and Physical Chemistry. Many "open source". There are a number of open source library files at <a href="#">/res/vcu/sshunnic/libraries/</a> covering many fundamental chemical/physical properties and quantities.

# Grading of Unknown Analysis Result

Due on Friday, May 23 at 04:30 pm (PDT)

## Exp B. TGA Results

Enter the following data and calculated results from your lab notebook:

**FIRST, CAREFULLY** enter your Unknown Sample Number.  
It must be correctly entered as a simple integer, between 1 and 999.  
Subsequent results input fields will not become available until this has been done.

Unknown Sample # =

Tries 0/1 Previous Tries

# Grading of Unknown Analysis Result

Due on Friday, May 23 at 04:30 pm (PDT)

## Exp B. TGA Results

Enter the following data and calculated results from your lab notebook:

**FIRST**, CAREFULLY enter your Unknown Sample Number.

It must be correctly entered as a simple integer, between 1 and 999.

Subsequent results input fields will not become available until this has been done.

Unknown Sample # = 397

Answer Submitted: Your final submission will be graded after the due date. Tries 1/1 Previous Tries

### 1. Data:

Sample	Mass	Heating Rate
CaC <sub>2</sub> O <sub>4</sub> ·xH <sub>2</sub> O		
Polyethylene glycol		
Unknown sample		
Antacid tablet		

Submit Answer Tries 0/10

2. Enter the Unknown weight percent Ca<sup>2+</sup> and its uncertainty.

(The submitted values will be entered in the table in Report I.)

(Do NOT include any units, NOR the % symbol in either field. i.e. If your result was 20.00%, enter simply "20.00". Note also, that the uncertainty is absolute, (not relative).)

Average % Ca =  ±

Submit Answer Tries 0/10 Previous Tries

# View of individual grading

Script Vars

## Submissions

Date Submitted: Fri May 16 04:22:44 pm 2014 (PDT)

Part: 4c. Wt% Ca<sup>2+</sup> and uncertainty: (Part ID: 4c) (Response ID: 45) Submitted Answer: 23.7

Part: 4c. Wt% Ca<sup>2+</sup> and uncertainty: (Part ID: 4c) (Response ID: 46) Submitted Answer: 0.12

## Send Message

Compose message to student (incl. grades )  
(Message will be sent when you click on Save & Next below.)

## Assign Grades

Part	Points	Assign Grade	Weight	Grade Status
4c. Wt% Ca <sup>2+</sup> and uncertainty: (Part ID: 4c)	<input type="radio"/> 0 <input type="radio"/> 0.1 <input type="radio"/> 0.2 <input type="radio"/> 0.3 <input type="radio"/> 0.4 <input type="radio"/> 0.5 <input type="radio"/> 0.6 <input type="radio"/> 0.7 <input type="radio"/> 0.8 <input type="radio"/> 0.9 <input type="radio"/> 1 <input type="radio"/> 1.1 <input type="radio"/> 1.2 <input type="radio"/> 1.3 <input type="radio"/> 1.4 <input type="radio"/> 1.5 <input type="radio"/> 1.6 <input type="radio"/> 1.7 <input type="radio"/> 1.8 <input type="radio"/> 1.9 <input type="radio"/> 2 <input type="radio"/> 2.1 <input type="radio"/> 2.2 <input type="radio"/> 2.3 <input type="radio"/> 2.4 <input type="radio"/> 2.5 <input type="radio"/> 2.6 <input type="radio"/> 2.7 <input type="radio"/> 2.8 <input type="radio"/> 2.9 <input checked="" type="radio"/> 3 <input type="radio"/> 3.1 <input type="radio"/> 3.2 <input type="radio"/> 3.3 <input type="radio"/> 3.4 <input type="radio"/> 3.5 <input type="radio"/> 3.6 <input type="radio"/> 3.7 <input type="radio"/> 3.8 <input type="radio"/> 3.9 <input type="radio"/> 4 <input type="radio"/> 4.1 <input type="radio"/> 4.2 <input type="radio"/> 4.3 <input type="radio"/> 4.4 <input type="radio"/> 4.5 <input type="radio"/> 4.6 <input type="radio"/> 4.7 <input type="radio"/> 4.8 <input type="radio"/> 4.9 <input type="radio"/> 5	or 3	/5 (problem weight) ✓	

LON-CAPA Script Vars - Mozilla ...

lewis.chem.sfu.ca/adm/grades

```
§CO3=32.9760846150618
§Ca=22.0239153849382
§CaCO3=55
§Cl=27.2982444133763
§Na=17.7017555866237
§NaCl=45
@NaCl=(50,55,60,40,45,50,55,60,40,45,50,55,60,40,45)
@NaCl5=(50,55,60,40,45)
@NaClr=(45,40,40,55,50,60,50,40,40,50,40,50,40,50,40)
§Unk=397
```

Save & Next

1 student(s)

Previous

Next

(Next and Previous (student) do not save the scores.)

Grading Menu

## Chemistry 215 Laboratory 2014-2 » Course Contents



Tools:



Sort by: Default



Welcome page for Chem 215 Lab -- LONCAPA Primer

Important Instructions

Schedule for Experiments

**Lab Group Assignment**

Introductory Experiment

Notes

Expt-A. Gravimetric Determination of Chloride.

Expt-B. Thermal Gravimetric Analysis (TGA).

Expt-B. Prelab Exercises.

Expt B. TGA Results

Exp B. TGA Results

(Part: ID)

Answer submitted, not yet graded

(Part: 1. Mass and Heating Rate:)



Answer submitted, not yet graded

(Part: 4c. Wt%  $\text{Ca}^{2+}$  and uncertainty:)



Answer submitted

Expt-C. EDTA Titration.

Mini Report (hidden)

Expt-D. Acid-Base Titration.

Exams (hidden)

Expt-E. Flame Atomic Emission Spectroscopy (AES).

Expt-F. Potentiometry (ISE).

Expt-G. Cyclic Voltammetry (RedOx Complexes).

Expt-H . Gas Chromatography - Mass Spectrometry (GC-MS) .

Lab Course Evaluation Survey

Report I. Comparison of Analytical Methods.

Summary Data for Hardcopy Report I. Comparison of Analytical Methods.



Due by Friday, Aug 1 at 11:59 pm (PDT)

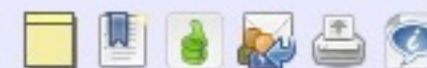
Unknown Composition (hidden)

Open at Friday, Jul 25 at 11:59 pm (PDT)

Report I Drop Box (hidden)



Due by Tuesday, Aug 5 at 12:59 am (PDT)



Due on Friday, Aug 1 at 11:59 pm (PDT)

## Summary Data for Hardcopy Report I. Comparison of Analytical Methods.

### Results

1. Your submitted results (plus uncertainties) of the weight percents of  $\text{Ca}^{2+}$ ,  $\text{CO}_3^{2-}$ ,  $\text{Na}^+$  and  $\text{Cl}^-$  in the unknown sample, are summarized in the following table:

	wt% $\text{Ca}^{2+}$	wt% $\text{CO}_3^{2-}$	wt% $\text{Na}^+$	wt% $\text{Cl}^-$
Expt. A (grav)				$26.8 \pm .3$
Expt. B (TGA)	$23.7 \pm 0.12$			
Expt. C (EDTA)	$21.52 \pm .12$			
Expt. D (Acid-Base)		$33.05 \pm 0.23$		
Expt. E (AES)	$21.34 \pm 0.13$		$17.25 \pm 0.19$	
Expt. F (ISE)	$20.9 \pm .5$			



# Titration of a Weak Acid with Strong Base

40.0 mL of 0.100-M 2-mercaptoethanol ( $K_a = 1.80 \times 10^{-10}$ ) is titrated with 0.100-M NaOH.

What is the initial pH of the 2-mercaptoethanol solution?

1pts

Tries 0/3 Previous Tries

What is the pH of the solution after 8.00 mL NaOH has been added?

1pts

Tries 0/3 Previous Tries

What is the pH of the solution after a total of 20.0 mL NaOH has been added?

1pts

Tries 0/3 Previous Tries

What is the pH of the solution after a total of 32.0 mL NaOH has been added?

1pts

Tries 0/3 Previous Tries

What is the pH of the solution after a total of 40.0 mL NaOH has been added?

1pts

Tries 0/3 Previous Tries

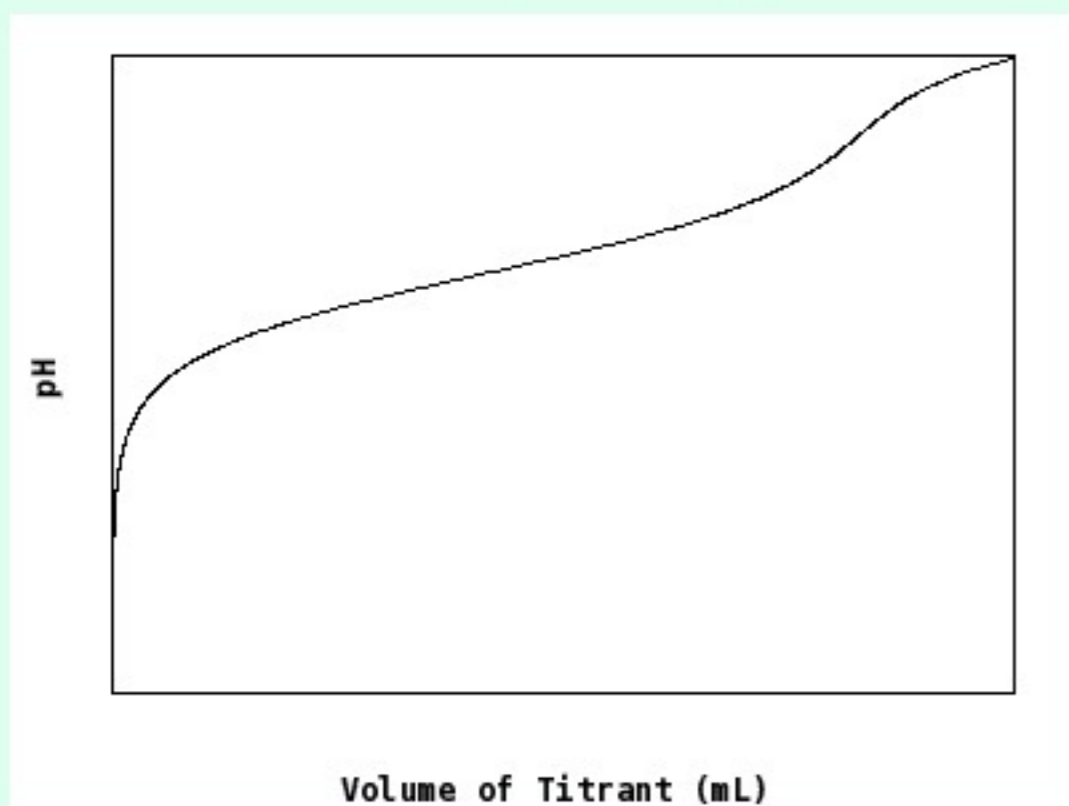
What is the pH of the solution after a total of 48.0 mL NaOH has been added?

1pts

Tries 0/3 Previous Tries

# Titration of a Weak Acid with Strong Base

40.0 mL of 0.100-M 2-mercaptoethanol ( $K_a = 1.80 \times 10^{-10}$ ) is titrated with 0.100-M NaOH.



What is the initial pH of the 2-mercaptoethanol solution?

5.37

1pts

You are correct. Computer's answer now shown above.

Your receipt no. is 161-3901 [?](#)

[Previous Tries](#)

What is the pH of the solution after 8.00 mL NaOH has been added?

1pts

Submit Answer

Tries 0/3

What is the pH of the solution after a total of 20.0 mL NaOH has been added?

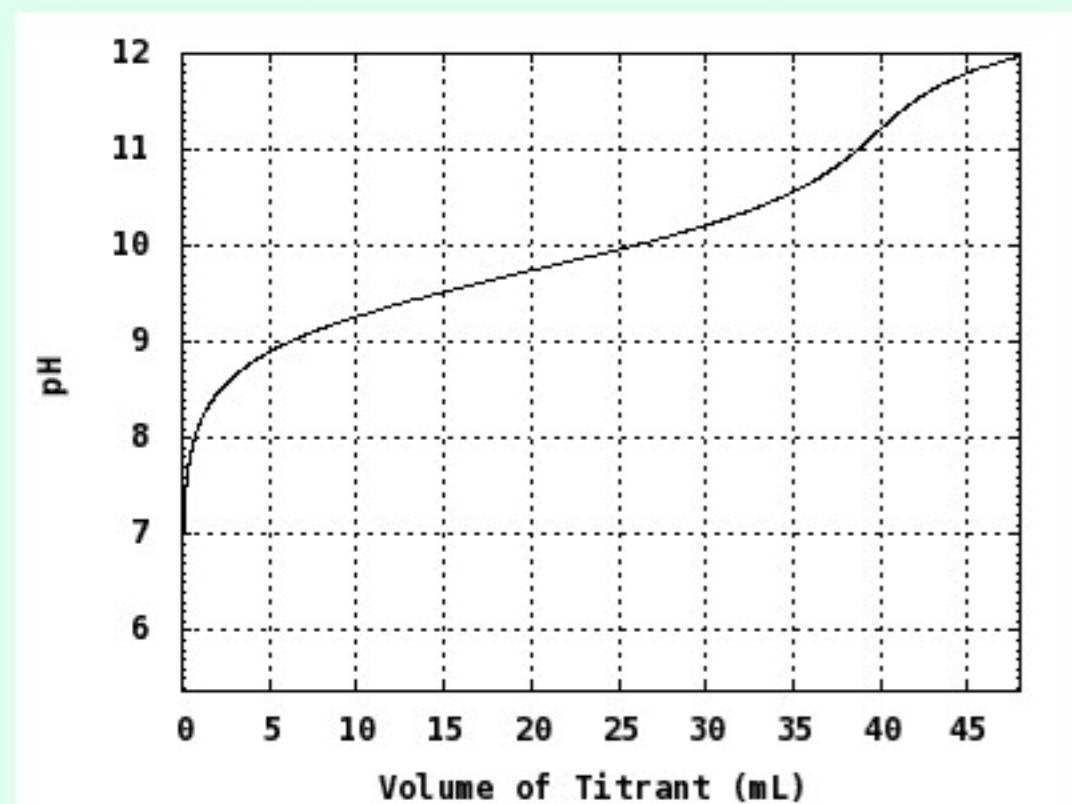
1pts

Submit Answer

Tries 0/3

# Titration of a Weak Acid with Strong Base

40.0 mL of 0.100-M 2-mercaptoethanol ( $K_a = 1.80 \times 10^{-10}$ ) is titrated with 0.100-M NaOH.



What is the initial pH of the 2-mercaptoethanol solution?

5.37

1pts

**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-3901 ?

[Previous Tries](#)

What is the pH of the solution after 8.00 mL NaOH has been added?

9.14

1pts

**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-6570 ?

[Previous Tries](#)

What is the pH of the solution after a total of 20.0 mL NaOH has been added?

9.74

1pts


**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-3901 

[Previous Tries](#)

What is the pH of the solution after 8.00 mL NaOH has been added?

**9.14**

1pts

**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-6570 

[Previous Tries](#)

What is the pH of the solution after a total of 20.0 mL NaOH has been added?

**9.74**

1pts

**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-6272 

[Previous Tries](#)

What is the pH of the solution after a total of 32.0 mL NaOH has been added?

**10.35**

1pts


**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-8493 

[Previous Tries](#)

What is the pH of the solution after a total of 40.0 mL NaOH has been added?

**11.21**

1pts


**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-2770 

[Previous Tries](#)


What is the pH of the solution after a total of 48.0 mL NaOH has been added?

**11.97**

1pts

**You are correct.** Computer's answer now shown above.  
Your receipt no. is 161-6921 

[Previous Tries](#)

 [Post Discussion](#)


## Titration of a Weak Acid with Strong Base

50.0 mL of 0.100-M crotonic acid ( $K_a = 2.03 \times 10^{-5}$ ) is titrated with 0.100-M NaOH.

What is the initial pH of the crotonic acid solution?

2.85

**You are correct.**

Your receipt no. is 153-3413 

Previous Tries

What is the pH of the solution after 20.0 mL NaOH has been added?

Submit Answer Tries 0/3

What is the pH of the solution after a total of 25.0 mL NaOH has been added?

Submit Answer Tries 0/3

What is the pH of the solution after a total of 40.0 mL NaOH has been added?

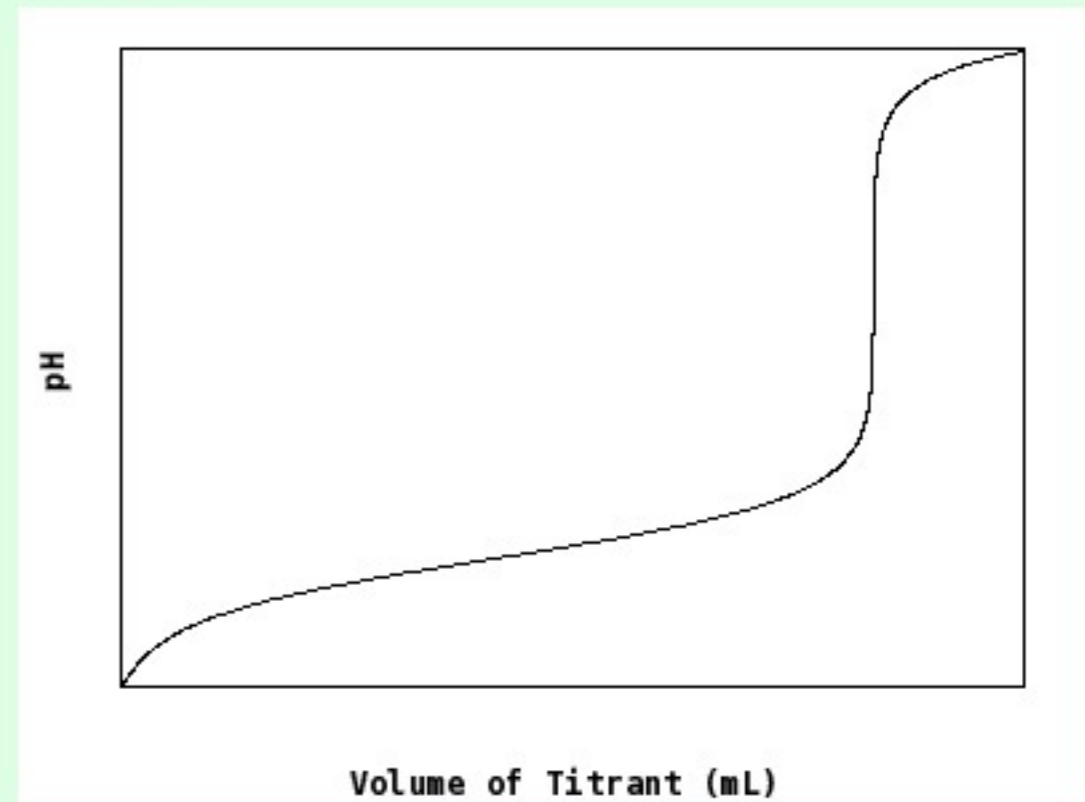
Submit Answer Tries 0/3

What is the pH of the solution after a total of 50.0 mL NaOH has been added?

Submit Answer Tries 0/3

What is the pH of the solution after a total of 60.0 mL NaOH has been added?

Submit Answer Tries 0/3



# Titration of a Weak Acid with Strong Base

50.0 mL of 0.100-M crotonic acid ( $K_a = 2.03 \times 10^{-5}$ ) is titrated with 0.100-M NaOH.

What is the initial pH of the crotonic acid solution?

2.85

**You are correct.**

Your receipt no. is 153-3413 ?

Previous Tries

What is the pH of the solution after 20.0 mL NaOH has been added?

4.52

**You are correct.**

Your receipt no. is 153-8781 ?

Previous Tries

What is the pH of the solution after a total of 25.0 mL NaOH has been added?

4.69

**You are correct.**

Your receipt no. is 153-1150 ?

Previous Tries

What is the pH of the solution after a total of 40.0 mL NaOH has been added?

5.29

**You are correct.**

Your receipt no. is 153-198 ?

Previous Tries

What is the pH of the solution after a total of 50.0 mL NaOH has been added?

8.70

**You are correct.**

Your receipt no. is 153-1032 ?

Previous Tries

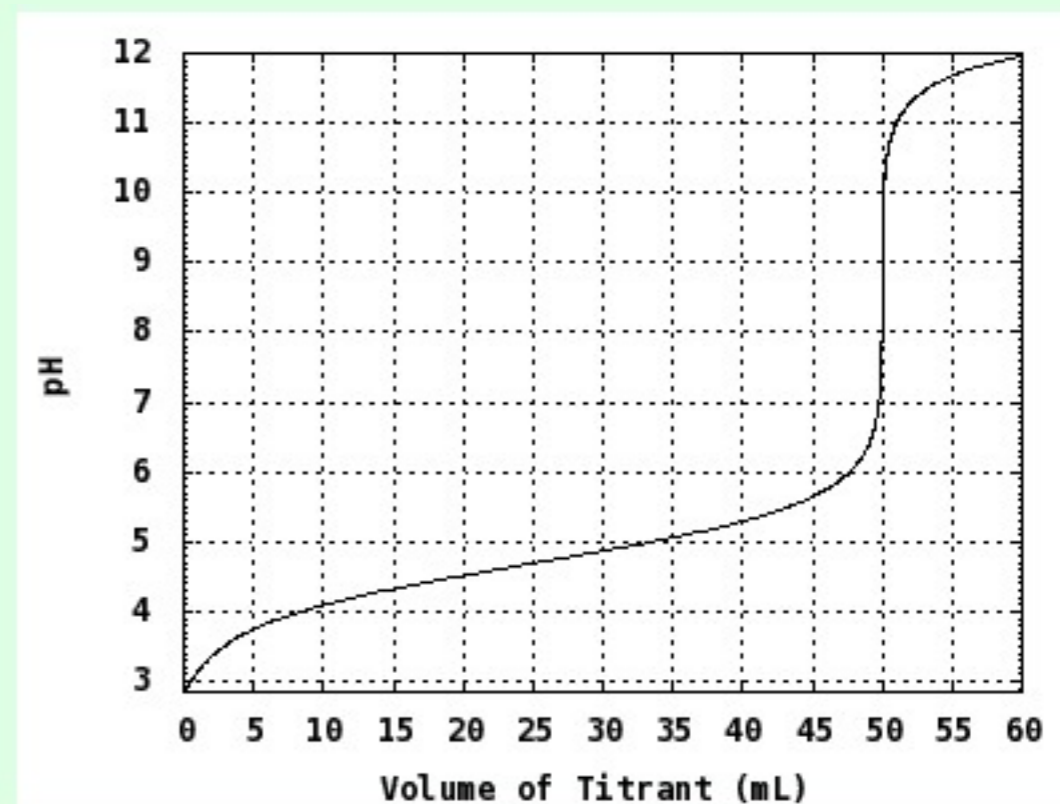
What is the pH of the solution after a total of 60.0 mL NaOH has been added?

11.96

**You are correct.**

Your receipt no. is 153-5360 ?

Previous Tries



# Individual's MT Exam Results

## "score upload" display in *LON-CAPA*

### Midterm Results

Total Mks/Pts = 17/22

Mult. Ch. Mks/Pts = 15/18

Numerical Mks/Pts = 2/4

Exam Version: 3689

Your Choices: aedabbbbceec cebacedc

Exam Answers: aedabbbbcea aebacedb

Point Values: 1111111111 11111111

Q1: Student Ans =  $2.30E+14$  Exam Ans =  $2.35E+14 \pm 1.17E+13$  Pts = 1 Score = 1

Q2: Student Ans = 0.017 Exam Ans =  $1.57E-04 \pm 7.87E-06$  Pts = 1 Score = 0

Q3: Student Ans = 0.073 Exam Ans =  $0.01912 \pm 3.82E-04$  Pts = 1 Score = 0

Q4: Student Ans = 2.39 Exam Ans =  $2.385 \pm 0.02$  Pts = 1 Score = 1

# Compiling statistics for 34 problems

This will take some time.

## Sequence Statistics

Sequence	#Items	Score Mean	Score STD	Score Max	Score Min	Score N	Count Mean	Count STD	Count Max	Count Min	Count N	KR-21
Final	36	21.99	5.48	36.00	6.00	337	21.99	5.48	36.00	6.00	337	0.74

## Chemistry 122 Burnaby 2014-1

Compiled on Wed May 21 10:42:29 pm 2014 (PDT)

Final

P#	Title	Part	#Stdnts (plot)	Tries (plot)	tries/correct (plot)	#Wrng (plot)	%Wrng (plot)	DoDiff (plot)	DoDisc (plot)
1	QvsKEqPos.exam	0	337	337	1.6	125.0	37.0	0.37	0.32
2	No Buff	0	332	332	6.4	280.0	84.3	0.84	0.11
3	acidic.or.basic.sol.SASB.exam	0	335	335	1.2	58.0	17.3	0.17	0.27
4	Ka.rxn.def.exam	0	337	337	1.6	127.0	37.6	0.38	0.42
5	pH.water.Kw.Tnot25.exam	0	337	337	1.6	120.0	35.6	0.36	0.39
6	pH.wb.exam	0	337	337	1.4	88.0	26.1	0.26	0.40
7	me/w.sign.isoT.expans.exam	0	337	337	1.9	158.0	46.8	0.47	0.14
8	entropy.fusion.exam	0	337	337	1.1	17.0	5.0	0.05	0.08
9	pH.change.concept.exam	0	336	336	1.2	50.0	14.8	0.15	0.21
10	acid.str.rel.exam	0	337	337	1.7	133.0	39.4	0.39	0.33
11	spontaneity.vs.T.exam	0	337	337	1.5	112.0	33.2	0.33	0.55
12	me/rev.delHf0.mult.exam	0	337	337	2.0	170.0	50.4	0.50	0.54
13	entropy.spont.exam	0	336	336	2.8	214.0	63.6	0.64	0.12
14	ME/NO.Gf.K.exam	0	336	336	3.3	235.0	69.9	0.70	0.42
15	delG0.Kps.thermo.exam	0	328	328	2.5	197.0	60.0	0.60	0.42
16	std.red.pots.rxn.exam	0	337	337	1.2	55.0	16.3	0.16	0.21
17	Selective Electrolysis	0	337	337	1.7	143.0	42.4	0.42	0.18
18	Galvanic.cell.simple.conc.eff.exam	11	337	337	1.2	65.0	19.2	0.19	0.41
19	Galvanic.cell.simple.conc.eff.exam	13	336	336	1.9	163.0	48.5	0.49	0.44
20	ME/car.battery.cell.exam	0	332	332	1.5	116.0	34.9	0.35	0.21





## Final

P#	Title	Part	#Stdnts (plot)	Tries (plot)	tries/correct (plot)	#Wrng (plot)	%Wrng (plot)	DoDiff (plot)	DoDisc (plot)
1	QvsKEqPos.exam	0	337	337	1.6	125.0	37.0	0.37	0.32
2	No Buff	0	332	332	6.4	280.0	84.3	0.84	0.11
3	acidic.or.basic.sol.SASB.exam	0	335	335	1.2	58.0	17.3	0.17	0.27
4	Ka.rxn.def.exam	0	337	337	1.6	127.0	37.6	0.38	0.42
5	pH.water.Kw.Tnot25.exam	0	337	337	1.6	120.0	35.6	0.36	0.39
6	pH.wb.exam	0	337	337	1.4	88.0	26.1	0.26	0.40
7	me/w.sign.isoT.expans.exam	0	337	337	1.9	158.0	46.8	0.47	0.14
8	entropy.fusion.exam	0	337	337	1.1	17.0	5.0	0.05	0.08
9	pH.change.concept.exam	0	336	336	1.2	50.0	14.8	0.15	0.21
10	acid.str.rel.exam	0	337	337	1.7	133.0	39.4	0.39	0.33
11	spontaneity.vs.T.exam	0	337	337	1.5	112.0	33.2	0.33	0.55
12	me/rev.delHf0.mult.exam	0	337	337	2.0	170.0	50.4	0.50	0.54
13	entropy.spont.exam	0	336	336	2.8	214.0	63.6	0.64	0.12
14	ME/NO.Gf.K.exam	0	336	336	3.3	235.0	69.9	0.70	0.42
15	delG0.Kps.thermo.exam	0	328	328	2.5	197.0	60.0	0.60	0.42
16	std.red.pots.rxn.exam	0	337	337	1.2	55.0	16.3	0.16	0.21
17	Selective Electrolysis	0	337	337	1.7	143.0	42.4	0.42	0.18
18	Galvanic.cell.simple.conc.eff.exam	11	337	337	1.2	65.0	19.2	0.19	0.41
19	Galvanic.cell.simple.conc.eff.exam	13	336	336	1.9	163.0	48.5	0.49	0.44
20	ME/car.battery.cell.exam	0	332	332	1.5	116.0	34.9	0.35	0.21
21	spontaneity.voltaic.cell.exam	0	337	337	1.8	145.0	43.0	0.43	0.36
22	equilibrium.dynamic.exam	0	337	337	1.4	103.0	30.5	0.31	0.45
23	initial.rates.concs.exam	0	337	337	1.1	26.0	7.7	0.08	0.20
24	second.order.halfives.exam	0	335	335	1.7	133.0	39.7	0.40	0.30
25	redox.equil.cond.exam	0	335	335	2.2	183.0	54.6	0.55	0.26
26	delS.heat.surr.incr.decr.exam	0	337	337	1.1	37.0	10.9	0.11	-0.01
27	S.G.H.misstatements.exam	0	336	336	3.9	249.0	74.1	0.74	0.27
28	LeChatelier.enthalpy.T.exam	0	337	337	1.2	65.0	19.2	0.19	0.40




# Summary Stats for an Individual Question:

## Overall Assessment Statistical Data

Statistics calculated for number of students:	2259
Average number of tries till solved:	1.00
Degree of difficulty:	 (0.30)
Degree of discrimination:	 (0.40)

## Recent Detailed Assessment Statistical Data

Course	Section(s)	Num Students	Mean Tries	Degree of Difficulty	Degree of Discrimination
Chemistry 122 Burnaby 2011-Spring	D100	454	1.00	0.35	0.39
Chemistry 122 Burnaby 2011-3	D100	235	1.00	0.34	0.46
Chemistry 122 Surrey 2012-Spring	D200	95	1.00	0.22	0.46
Chemistry 122 Burnaby 2012-Spring	D100	332	1.00	0.33	0.37
Chemistry 122 Burnaby 2012-3	D100	242	1.00	0.26	0.43
Chemistry 122 Surrey 2013-Spring	D200	125	1.00	0.30	0.47
Chemistry 122 Burnaby 2013-1	D100	307	1.00	0.22	0.26
Chemistry 122 Surrey 2014-Spring	D200	132	1.00	0.17	0.26
Chemistry 122 Burnaby 2014-1	D100	337	1.00	0.33	0.54

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Due this Sunday, May 22 at 11:59 pm (PDT)

1 point(s)

## Dial-a-Formula

The class of *ternary* compounds called *carboranes* (containing the elements carbon, boron and hydrogen) have played a prominent role in many areas of fundamental chemical research. In particular, they have provided many interesting examples for testing theories on chemical bonding and structure.

A particular carborane has the following mass percentages: **74.96%B** and **8.39%H**.

What is the **empirical** formula of this compound?

Choose appropriate coefficients in the molecular formula below.

C  B  H

[Submit Answer](#) Tries 0/6 [Previous Tries](#)[Post Discussion](#)[Send Feedback](#)



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What is the **empirical** formula of this compound?

Choose appropriate coefficients in the molecular formula below.

**C B<sub>5</sub> H<sub>6</sub>**

**You are correct.** Computer's answer now shown above.

Your receipt no. is 164-240 

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