

CHEMISTRY



So glad you are here! Feel free to introduce yourself in the chat!



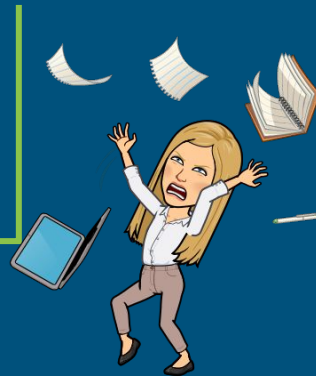
Welcome to APTeach: Getting to know the Desmos graphing calculator



PLEASE reach out
to join us for
planning sessions!!



AP TEACH
07-24-25



APT_{Teach}

ANNOUNCES PARTNERSHIP
WITH



APT_{Teach} Partners with ChemEd X

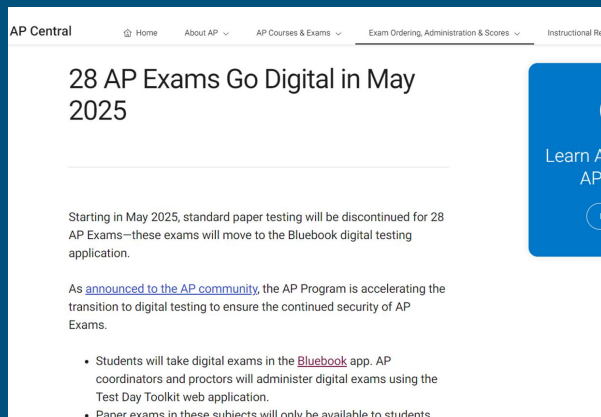
<https://www.chemedx.org/article/apteach-partners-chemed-x>

We can always use YOUR help (and patience)

As we transition to ChemEdX,
Sign up (<https://chemedx.org/user/register>) **for free**
(not subscribe) on the ChemEd X website to receive updates
via the email Newsletter and Facebook for future sessions!
Coming Soon: ChemEd X updated website!

28 AP Exams Go Digital in May 2025

<https://apcentral.collegeboard.org/exam-administration-ordering-scores/digital-ap-exams/28-exams-digital-2025>



Until widespread technology becomes more available for easier drawing of graphs or diagrams and writing equations and formulas, hybrid chemistry exams will allow for better security, yet ease of answering.

How will the hybrid digital exams work?

For the 12 hybrid digital AP Exams, students complete multiple-choice questions and view free-response questions in Bluebook. They handwrite their free-response answers in paper exam booklets that are returned for scoring. More information about these exams will be shared with teachers and AP coordinators in the coming months.

For more info on Bluebook:
<https://bluebook.collegeboard.org/>

To download Bluebook:
<https://bluebook.collegeboard.org/students/download-bluebook>

AP Exam Calculator Policy

<https://apstudents.collegeboard.org/exam-policies-guidelines/calculator-policies>

Course	Type of calculator allowed	Section I Multiple Choice	Section II Free Response
Chemistry	A scientific calculator (must not have unapproved features or capabilities; see list of unapproved calculators and technology) or graphing calculator are recommended; a 4-function calculator is allowed but not recommended. Built-in Desmos graphing calculator through Bluebook.	Allowed	Allowed

Desmos

<https://www.desmos.com/calculator>

Hybrid Digital Exams

The screenshot shows the AP Central website. At the top is a navigation bar with the AP logo, a search bar, and links for 'Sign In' and 'Search'. Below this is a secondary navigation bar with links for 'Home', 'About AP', 'AP Courses & Exams', 'Exam Ordering, Administration & Scores', 'Instructional Resources', and 'Professionals'. The main content area has a breadcrumb trail: 'Home / Exam Ordering, Administration & Scores / Digital AP Exams / About Hybrid Digital AP Exams'. The title 'About Hybrid Digital AP Exams' is prominently displayed. Below the title, a paragraph states: 'Learn about the free-response booklets for hybrid digital AP Exams and find sample booklets for each subject.' A horizontal line separates this from the main body of text. The text explains that students taking hybrid digital AP Exams complete multiple-choice questions in the Bluebook testing app and write their responses in paper free-response booklets. It notes that these booklets are similar to existing free-response booklets and that AP coordinators will receive their school's exam shipment in April, with proctors distributing them on exam day. A final paragraph mentions that there are differences in booklet format by subject and that an overview highlighting key aspects and full sample PDFs are available for each subject's free-response booklet. It also states that the booklets are not designed for use with currently available practice exams.

AP Central

Home About AP AP Courses & Exams Exam Ordering, Administration & Scores Instructional Resources Professionals

Home / Exam Ordering, Administration & Scores / Digital AP Exams / About Hybrid Digital AP Exams

About Hybrid Digital AP Exams

Learn about the free-response booklets for hybrid digital AP Exams and find sample booklets for each subject.

Students taking hybrid digital AP Exams complete multiple-choice questions and view free-response questions in the Bluebook testing app, and write their responses in paper free-response booklets. These booklets are similar to the existing free-response booklets that students have used for paper AP Exams. AP coordinators will receive their school's exam shipment of hybrid exam booklets in April, and proctors will distribute the booklets on exam day before students begin testing. On the front cover of all booklets, students will fill in brief identification information and place an AP ID label.

There are some differences to the format of the booklets depending on AP subject. To help AP coordinators, teachers, proctors, and students become familiar with the format of the booklets ahead of exam day, you can download an overview highlighting the key aspects of the booklets by subject as well as full sample PDFs for each subject's free-response booklet. These can be used for reference to understand what the booklets will look like. The booklets are not designed to be used with currently available practice exams.

Sample Free-Response Booklets

Download a full-length sample booklet for each hybrid digital AP subject.

- [AP Biology](#)
- [AP Calculus AB](#)
- [AP Calculus BC](#)
- [AP Chemistry](#)
- [AP Macroeconomics](#)
- [AP Microeconomics](#)
- [AP Physics 1: Algebra-Based](#)
- [AP Physics 2: Algebra-Based](#)
- [AP Physics C: Electricity and Magnetism](#)
- [AP Physics C: Mechanics](#)
- [AP Precalculus](#)
- [AP Statistics](#)

TEST BOOK SERIAL NUMBER

AP[®]

AP[®] Chemistry

Sample Booklet

SECTION II: FREE-RESPONSE

ENTER YOUR IDENTIFICATION
INFORMATION

1. First two letters of your last name
- First letter of your first name
2. Date of birth Month Day
3. Six-digit school code

Time: 1 hour, 45 minutes

Questions: 7

- Free-response questions and the section timer are in Bluebook.
- Write answers in this booklet.
- Use a pencil or pen with black or dark blue ink.
- Do not write outside the box. Erased or crossed-out work will not be scored.
- Reference information is in Bluebook.

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Affix AP ID Label Here

25

Use a pencil or a pen with black or dark blue ink. Do NOT write your name. Do NOT write outside the box.

Question 1

Part A

Part B

Part C

Page 2

Question 1 is continued on the next page.

04521106

Use a pencil or a pen with black or dark blue ink. Do NOT write your name. Do NOT write outside the box.

Part A

Question 2

= H = O

Part B

Page 5

Question 2 is continued on the next page.

Digital Exams

FAQs

Will reference materials for hybrid digital AP Exams be printed, or provided in Bluebook?

All reference material will be in Bluebook.

Will the free-response booklets contain graphs or diagrams for students to write their responses on?

Free-response booklets for some AP subjects (Biology, Chemistry, the Physics subjects, Precalculus) will contain graphs or diagrams for students to write their responses on.

Will proctors provide directions to students about how to write their responses in the free-response booklets for hybrid digital AP Exams?

Yes. Before beginning testing, proctors will read directions aloud from Test Day Toolkit to give students information about the testing experience, including using the free-response booklets. Before starting Section II, students will read section directions in Bluebook that will reiterate important details about writing their responses in the free-response booklets.

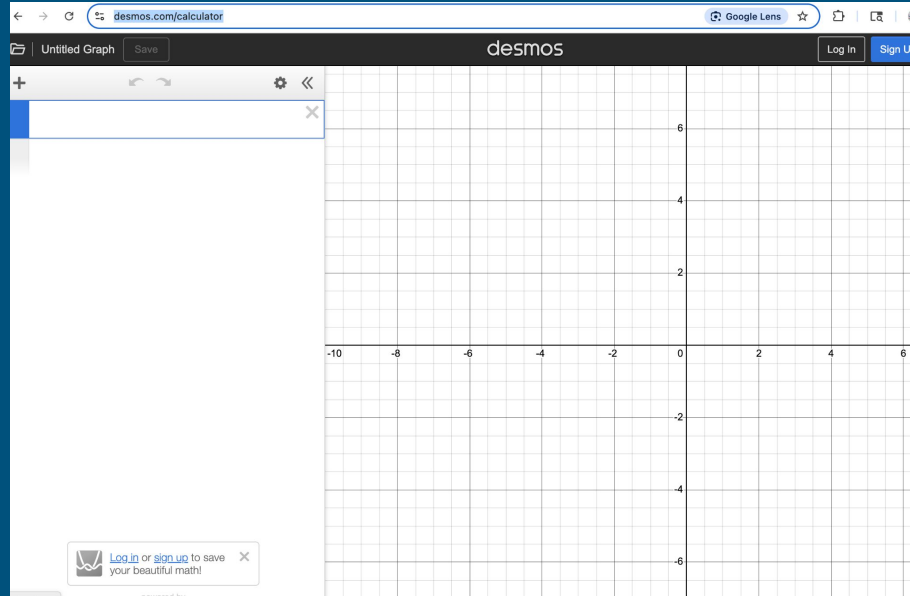
Starting with the 2025 AP exam

The Desmos graphing calculator

<https://www.desmos.com/calculator>

is embedded into Bluebook for the
hybrid exam

(it's not the same calculator that you
find on line)

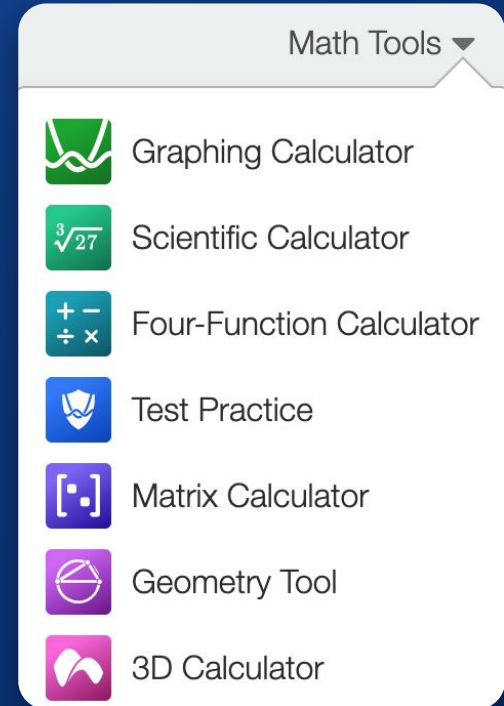


Who Is Desmos Studio?

We're on a mission to help everyone learn math, love math, and grow with math.

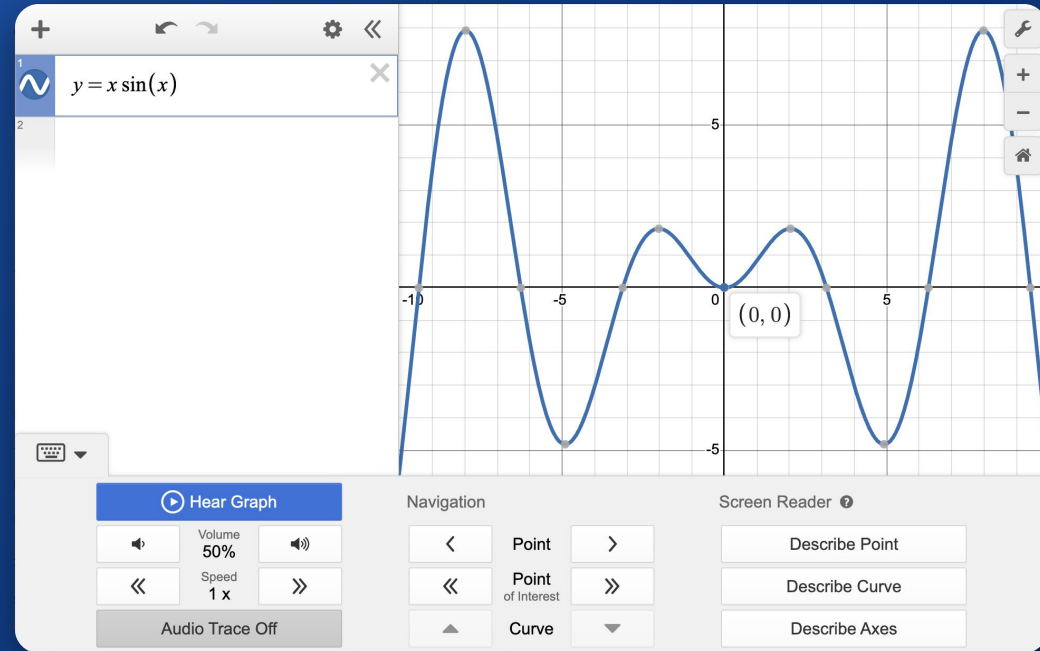
Our Goals:

- Improve access and accessibility
- Reveal the beauty, power, and joy of math
- Help every person see themselves as a mathematician



Accessibility

- Blind and low-vision support
 - Large text
 - Reverse contrast
- Math-aware screen reader
- Audio trace



Desmos on AP[®] Tests

For the most up-to-date information, refer to the [AP Calculator Policy](#)

[Graphing Calculator](#) only:



- Calculus AB/BC
- Precalculus
- Statistics



[Scientific](#) and [Graphing Calculators](#):

- Chemistry
- Physics 1 & 2
- Physics C: Mechanics
- Physics C: Electricity & Magnetism



[Scientific](#) only:



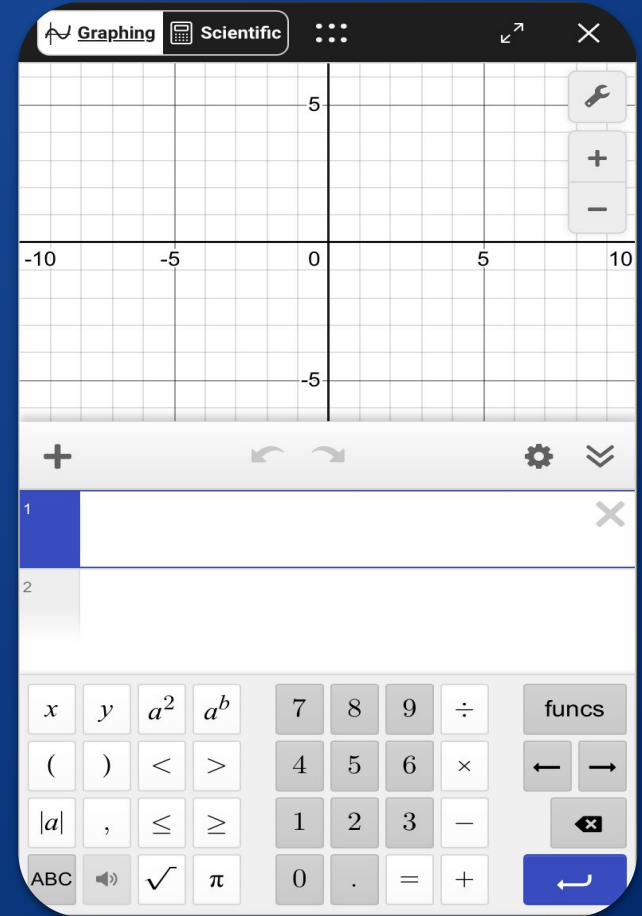
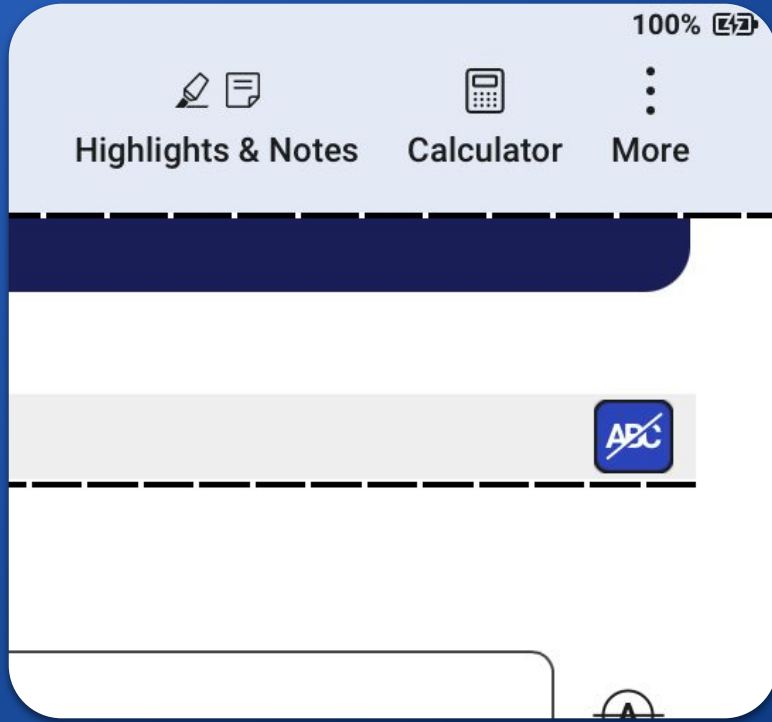
- Biology
- Environmental Science

[Four-Function](#) only:



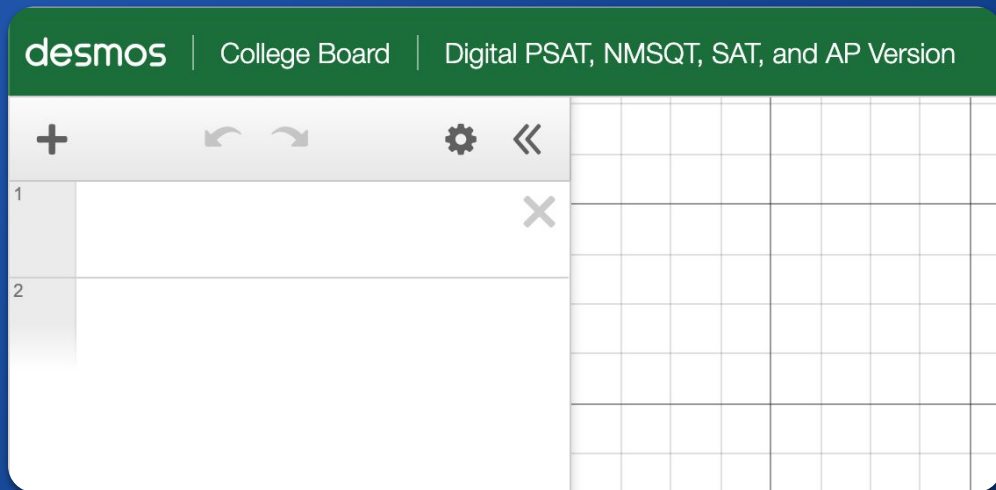
- Macroeconomics
- Microeconomics
- Networking

Desmos in Bluebook



Desmos on AP[®] Tests con't

- [AP Exam Calculator Policy](#)
- [Desmos Assessments page](#) and [Assessment FAQ](#)

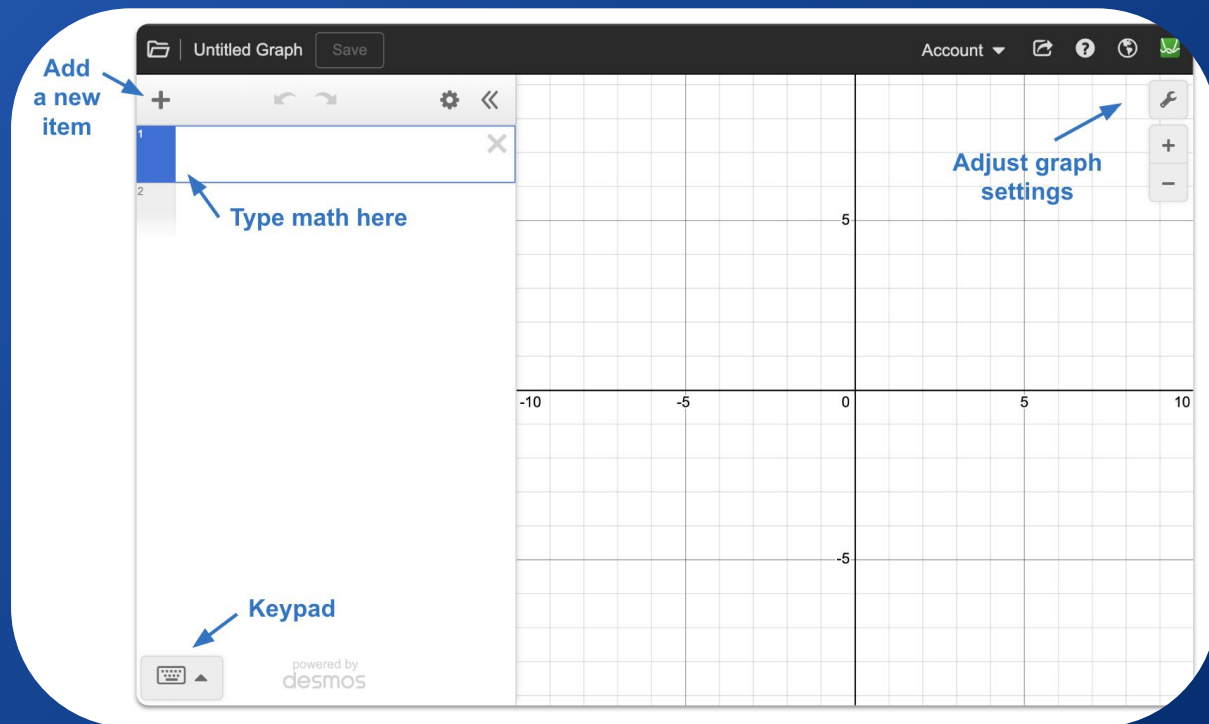


**Digital SAT[®] Suite, AP[®] Exams,
and Pre-AP[®] Exams**

[SAT and AP Overview PDF](#)
[Pre-AP Overview PDF](#)

Practice with the sample Graphing
Calculators for [the Digital SAT Suite](#)
[and AP Exams](#) or [Pre-AP Exams](#).

Explore the Graphing Calculator



Change the opacity,
width, or outline of
the point

Points

 1

 8

☐ Point outline

Color options



Change size, angle,
or text outline of
the label

Label

A 1

 0 rad

☐ Text outline

Make your point
draggable or
clickable

Drag

Clickable

Show/hide point

Point styles

Show/hide label

Change the position
of the label

Explore the Graphing Calculator

Example



ICE	$\text{H}_{2(g)}$	$\text{CO}_{2(g)}$	$\text{H}_2\text{O}_{(g)}$	$\text{CO}_{(g)}$
Initial	0.570	0.632	0	0
Change	-x	-x	+x	+x
Equilibrium	(0.570 - x)	(0.632 - x)	x	x

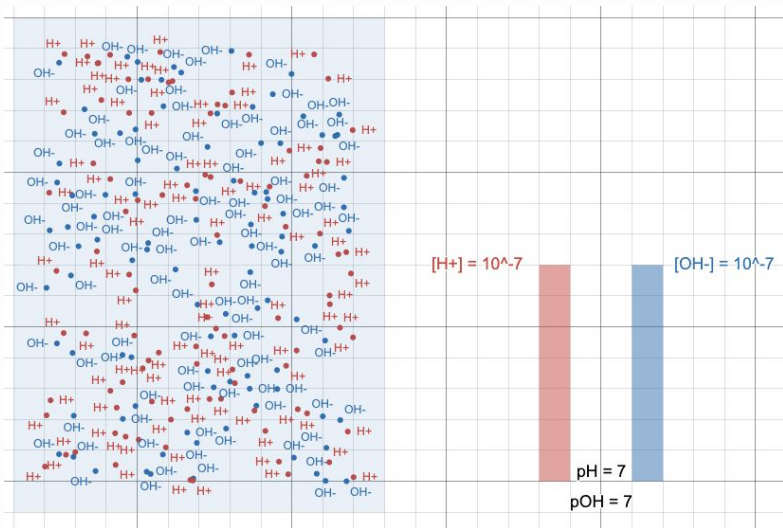
$$K = \frac{[\text{H}_2\text{O}][\text{CO}]}{[\text{H}_2][\text{CO}_2]} = \frac{x^2}{(0.570 - x)(0.632 - x)} = 0.106$$

<https://www.desmos.com/calculator/4slujd5uun>

Desmos for Teaching and Learning

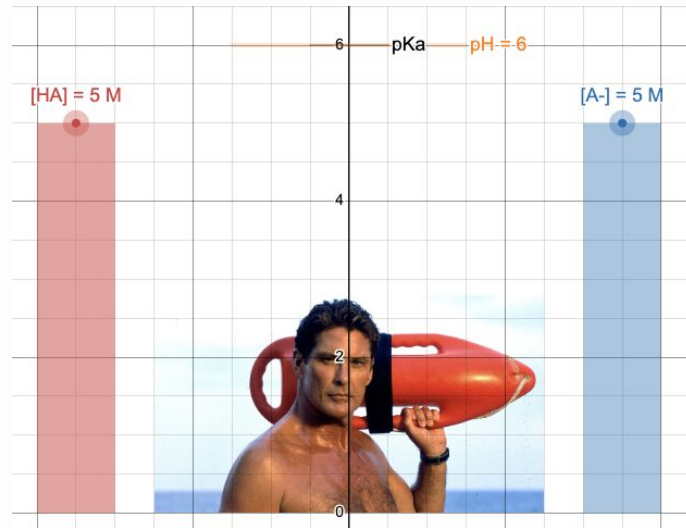
pH

<https://www.desmos.com/calculator/k72e8mkowe>



pH of a Buffer

<https://www.desmos.com/calculator/sszt6jphuc>



Graphs created by Luca Preziati
(Associate Professor, University of Hawaii, Leeward College)

Desmos for Teaching and Learning

Nernst Equation

<https://www.desmos.com/calculator/gspdhxuste>

Graphs created by Luca Preziati
(Associate Professor, University of Hawaii, Leeward College)

Using Desmos Instructionally

- **Computations and Calculations**
 - How do we evaluate expressions and functions?
- **Graph Visualizations**
 - How can a graph communicate ideas and information?
- **Connect Representations**
 - How can the relationship between representations offer insights and feedback?

Breakout Room Discussions

Open the Desmos Graphing Calculator and play...

Here are some typical questions from recent AP Chemistry exams

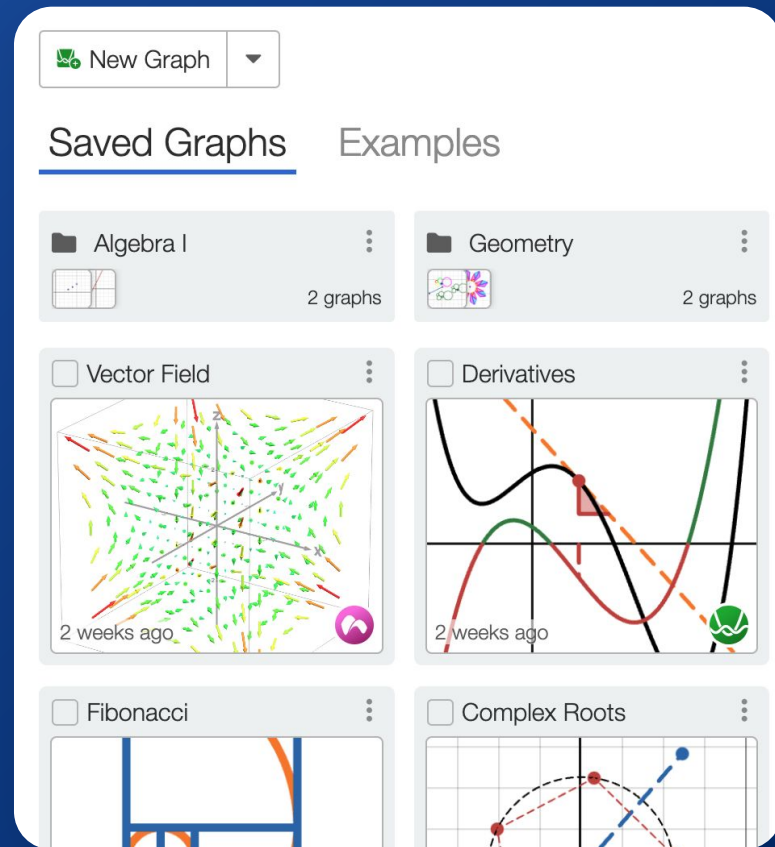
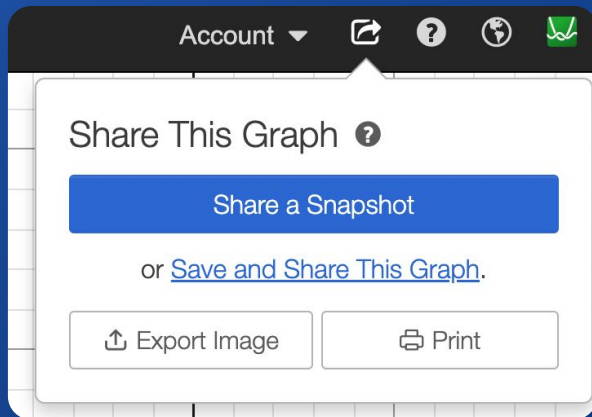
Think about how you might use Desmos instructionally in your classes:

- How do we evaluate expressions and functions?
- How can a graph communicate ideas and information?
- How can the relationship between representations offer insights and feedback?

Saving and Sharing

Skills to know:

- Sign in to save and organize your graphs
- Access your saved graphs from the icon
- Share URLs for your saved graph or snapshot



Additional Resources



[Help Center](#)



[User Guide](#)



[Tutorials & Webinars](#)



[Scavenger Hunts](#)

Log In Sign Up

Tours

Sliders Tables Restrictions Regressions

Resources

User Guide Keyboard Shortcuts Help Center Supported Functions

Contact Us

Email Our Support Team

Explore more:



[Desmos Art](#)



[What's New](#)

Help Center: [Learn \(With\) Desmos](#)



support@desmos.com

yannabah@desmos.com

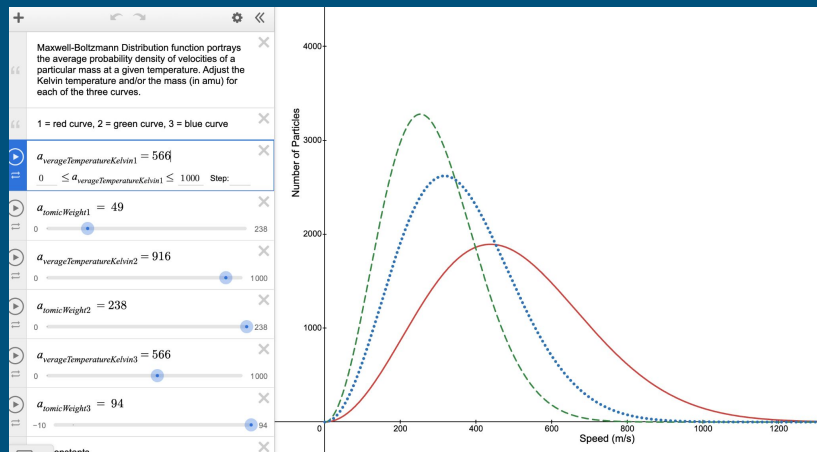
desmos
studio PBC

Thank you!

Using the graphing calculator to show Maxwell-Boltzmann distributions

Jamie Benigna made these graphs using the Desmos graphing calculator

- Single curve
- Slider for the activation energy
- Slider for the activation energy AND highlights the area under the curve after the E_a
- Two curves
- Three curves



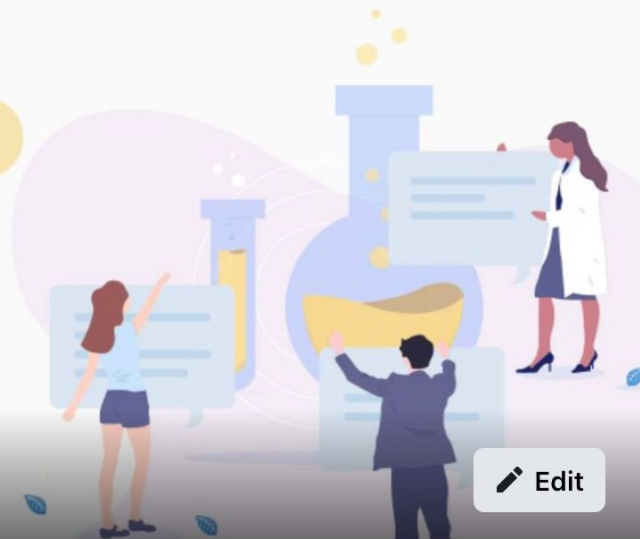
Find APTeach on Facebook and ChemEdX

Welcome to APTeach!

APTeach is a community dedicated to helping teachers with the most challenging aspects of teaching AP Chemistry.

We offer **online live discussions** in response to current issues, including distance learning and planning for next year.

Come join a live discussion!



Edit

A.P. Teach For A.P. Chemistry Teachers

Private group · 6 members



Joined ▼

+ Invite

