

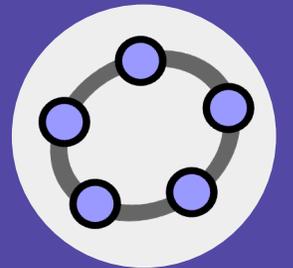
NCAMS

Fall
2022-'23

GeoGebra

From Simple Calculator to Improving Instruction

Learning with GeoGebra Apps, Resources, Classroom



Rob Pontecorvo
rob@geogebra.org



All music open, free, and provided by <https://www.bensound.com>
Opening song "Online" by Brad Paisley



What are you
doing for
Christmas?



What about
standing?

Sitting around.



It's kind of
a tradition.



“But we’ve always done it that way.”

“We’re all accustomed to it.”

“The kids like it.”

Really?

**No longer does
the acrobatic manipulation
of calculator buttons
need to be in the way of good instruction.**



GeoGebra

Three Main Elements

- **Some really nice “dynamic” calculators**
- **Over 1 million free community created resources**
- **A way to share those resources with your students, “GeoGebra Classroom”**



GeoGebra

Addressing the
elephant
in the room

- **Is it really all free?**
- **What's with the name?**

But what about testing?

What good is it if you can't use it
on exams?

Well, . . . you can!

Exam Mode

MDM locked Exam Mode

Teacher locked Exam Mode

Student locked Exam Mode

Please go to www.geogebra.org and open the graphing calculator

The screenshot shows the GeoGebra website homepage. At the top, there is a navigation bar with the GeoGebra logo and a 'SIGN IN' button. Below this, the main heading reads 'GeoGebra for Teaching and Learning Math', followed by the tagline 'Free digital tools for class activities, graphing, geometry, collaborative whiteboard and more'. A prominent blue button labeled 'START CALCULATOR' is visible. Below the main heading, there are three columns of links. The middle column, titled 'Ready for Tests', contains a list of tools: 'Graphing Calculator', 'Scientific Calculator', 'GeoGebra Classic', and 'GeoGebra on Tests'. The 'Graphing Calculator' link is circled in red, and three red arrows point to it from the right. The left column is titled 'Powerful Math Apps' and lists 'Calculator Suite', '3D Calculator', 'CAS Calculator', and 'Geometry'. The right column is titled 'More Great Apps' and lists 'Notes', 'App Store', 'Google Play', and 'App Downloads'. At the bottom, there is a 'Featured Resources' section with four cards: 'GeoGebra Community' (Book), 'Illustrative Math Curriculum - Free' (Activity), 'Elementary School Math' (Activity), and 'Middle & High S. Math: 2200+' (Activity). A 'SHOW ALL' link is located to the right of the featured resources.

12:02 PM Mon Nov 14

GeoGebra Mail | My Sign-Ins | Regi... | Sign in to your act... | GeoGebra - the w... | +

← → ↻ geogebra.org

GeoGebra SIGN IN

GeoGebra for Teaching and Learning Math

Free digital tools for class activities, graphing, geometry, collaborative whiteboard and more

START CALCULATOR

CLASSROOM RESOURCES

Powerful Math Apps

- Calculator Suite
- 3D Calculator
- CAS Calculator
- Geometry

Ready for Tests

- Graphing Calculator**
- Scientific Calculator
- GeoGebra Classic
- GeoGebra on Tests

More Great Apps

- Notes
- App Store
- Google Play
- App Downloads

Featured Resources

SHOW ALL

- BOOK: **GeoGebra Community** (GeoGebra Team)
- ACTIVITY: **Illustrative Math Curriculum - Free** (GeoGebra Classr...)
- ACTIVITY: **Elementary School Math:** (GeoGebra Team)
- ACTIVITY: **Middle & High S. Math: 2200+** (GeoGebra Team)

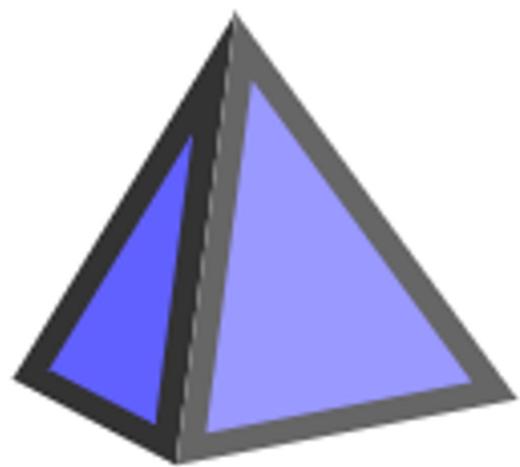
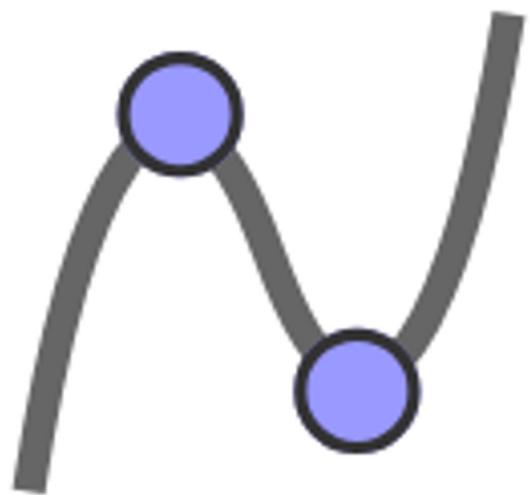
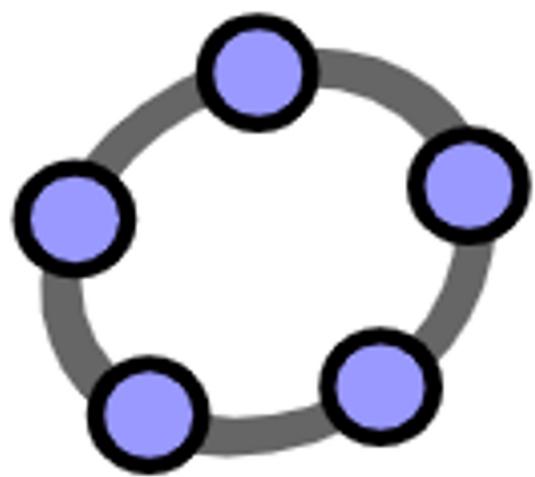
Enter: $y = 2x - 1$

Enter: $x + y = 5$

Find the point of intersection.

Clear all.

Enter $y = ax^2 + bx + c$



GeoGebra Apps Comparison

apps / features	 Scientific	 Graphing	 Geometry	 Suite	 3D	 CAS	 Classic
Numeric calculations	✓	✓	✓	✓	✓	✓	✓
Function operations	✓	✓	✓	✓	✓	✓	✓
Fraction operations	✓	✓	✓	✓	✓	✓	✓
Graphing		✓	✓	✓	✓	✓	✓
Sliders		✓	✓	✓	✓	✓	✓
Vectors & matrices		✓	✓	✓	✓	✓	✓
Table of values		✓		✓		✓	✓
Geometric constructions			✓	✓	✓	✓	✓
3D graphing				✓	✓		✓
Probability Calculator				✓*			✓
Derivatives & integrals				✓	✓	✓	✓
Equation solving				✓	✓	✓	✓
Symbolic calculations				✓	✓	✓	✓
Spreadsheet							✓

*coming soon



GeoGebra 3D

Create Images in 3D
or AR

[Quick Demo](#)



GeoGebra CAS

factor, integrate,
differentiate, etc.

[Quick Demo](#)

Let's talk about changing
our classroom.

Procedural vs Conceptual Understanding

<https://youtu.be/4ko3Ke3rTBY>

“But we’ve always done it that way.”

“We’re all accustomed to it.”

“The kids like it.”

Really?



GeoGebra Classroom

Live lessons
with interactive tools

www.geogebra.org/classroom

- Distribute digital materials quickly and easily
- Students work on assignments with or without login
- Check answers in real-time and get an overview of the learning progress

GeoGebra Resources

How do you find the resources?

<https://www.geogebra.org/materials>

AA geogebra.org

Search Classroom Resources SIGN IN

GeoGebra for Teaching and Learning Math

Free digital tools for class activities, graphing, geometry, collaborative whiteboard and more

START CALCULATOR

CLASSROOM RESOURCES

Powerful Math Apps

- Calculator Suite
- 3D Calculator
- CAS Calculator
- Geometry

Ready for Tests

- Graphing Calculator
- Scientific Calculator
- GeoGebra Classic
- GeoGebra on Tests

More Great Apps

- Notes
- App Store
- Google Play
- App Downloads

Featured Resources

SHOW ALL

- BOOK**
GeoGebra Community
GeoGebra Team
- ACTIVITY**
Illustrative Math Curriculum - Free
GeoGebra Classr...
- ACTIVITY**
Elementary School Math:
GeoGebra Team
- ACTIVITY**
Middle & High S. Math: 2200+
GeoGebra Team

Tutorials

SHOW ALL



GeoGebra Classroom

Live lessons
with interactive tools

www.geogebra.org/classroom



Create a class
from any
resource



Share it with
your students



Review their
work in real-
time



GeoGebra Classroom

Live lessons
with interactive tools

www.geogebra.org/classroom

**Must you and/or your students have accounts?
No, but . . .**

- Teachers need an account to save and share resources
- Students need an account for the teacher to be sure that the student uses their real name

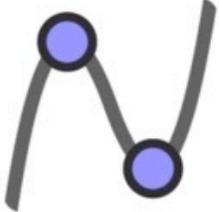
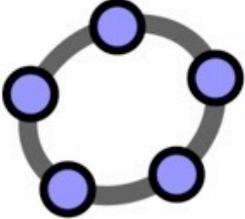
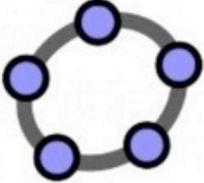
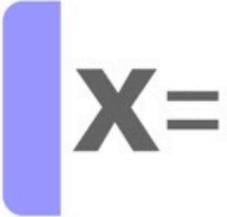
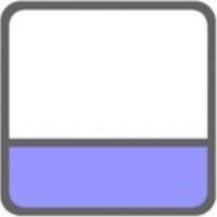
Yes, GeoGebra can sign the EdLaw-2d form.

<https://www.geogebra.org>



Tutorials

Learn how easy it is to use GeoGebra apps with our tutorial videos and courses!

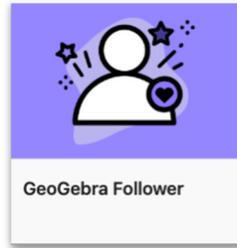
 <p>BOOK Learn GeoGebra Classroom GeoGebra Team</p>	 <p>BOOK Learn Graphing Calculator GeoGebra Team German</p>	 <p>BOOK Learn Calculator Suite GeoGebra Team</p>	 <p>BOOK Learn GeoGebra Classic GeoGebra Team German</p>
 <p>BOOK Learn how to use Resources GeoGebra Team</p>	 <p>BOOK Learn CAS Calculator GeoGebra Team</p>	 <p>BOOK Learn Notes GeoGebra Team</p>	 <p>BOOK Learn Geometry GeoGebra Team German</p>



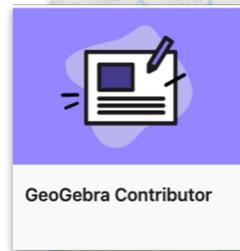
STAY TUNED

Join our
Community
Program and
receive the
GeoGebra
Newsletter

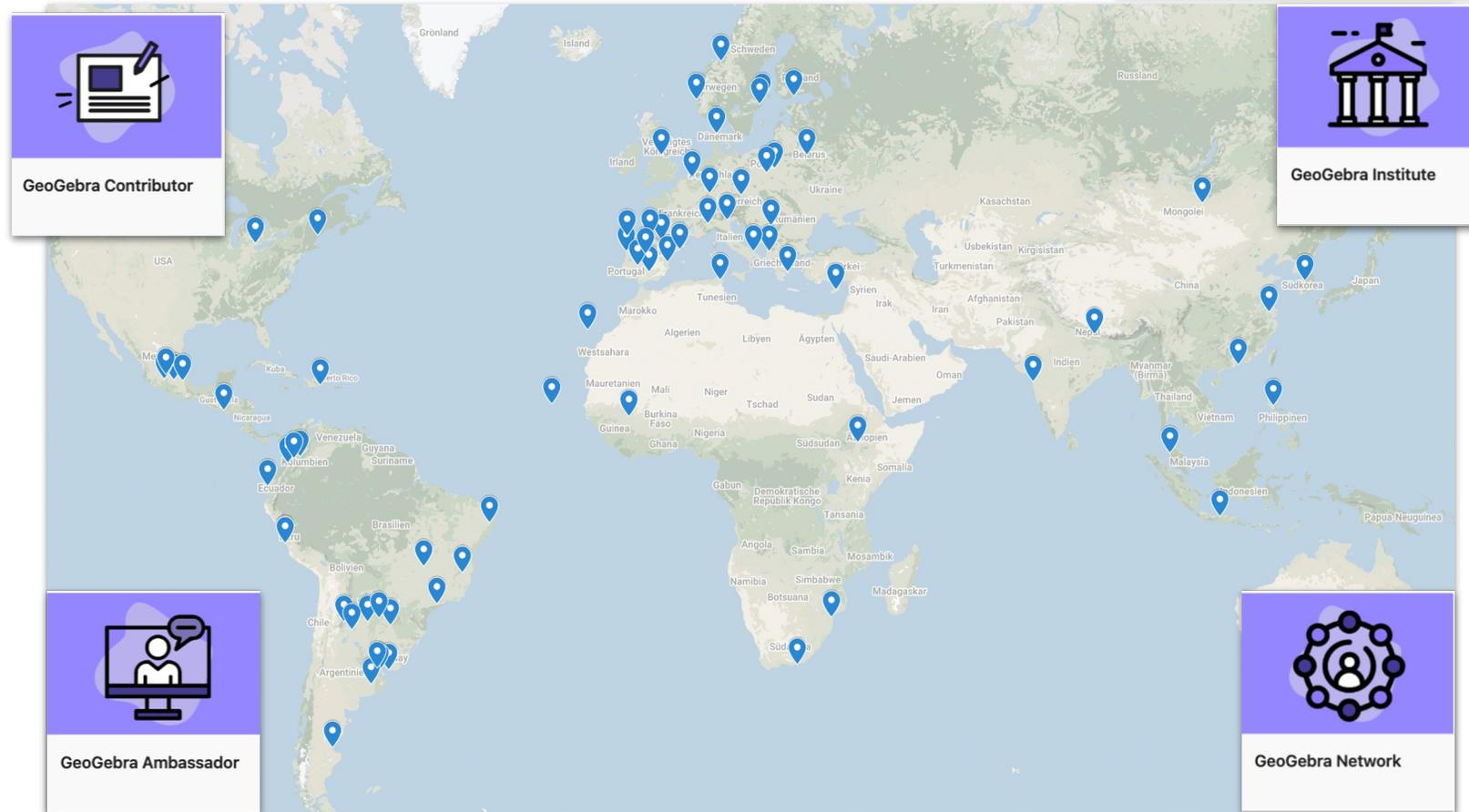
www.geogebra.org/m/nmmmzgzn



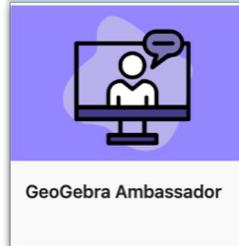
GeoGebra Follower



GeoGebra Contributor



GeoGebra Institute



GeoGebra Ambassador



GeoGebra Network

GeoGebra

Questions? Ideas? Wishes?

support@geogebra.org

Follow us!
@geogebra



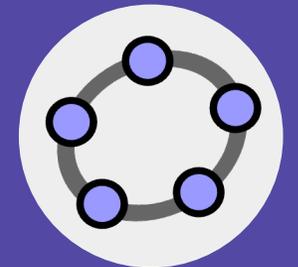
NCAMS

Fall
2022-'23

GeoGebra

From Simple Calculator to Improving Instruction

Learning with GeoGebra Apps, Resources, Classroom



Rob Pontecorvo
rob@geogebra.org

All music open, free, and provided by <https://www.bensound.com>
Opening song "Online" by Brad Paisley