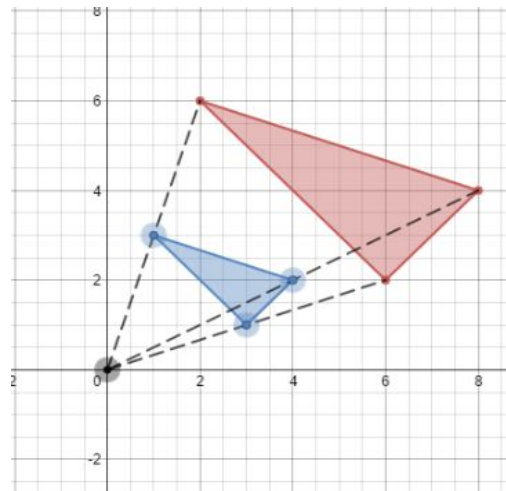


Desmos 101- Geometry

Incorporating Desmos Into Instruction



Objectives & Agenda

OBJECTIVES:

1. To increase teacher understanding and knowledge of Desmos App.
2. To use Interactive tasks and Classroom Activities to highlight how Desmos can be utilized to support teacher instruction and student assessment
3. To use Desmos' Digital Activities to highlight how Desmos can be used to enhance student collaboration and increase student engagement.n

AGENDA:

1. Desmos Overview
2. Interactive Task 1: Sliders
3. Interactive Task 2: Desmos Activities
4. Interactive Task 3: Geometry Tool
5. Curriculum Connections
6. Questions/Next Steps/Contacts

www.desmos.com

desmos

About

Partnerships

Classroom Activities

We're Hiring!

Explore math with Desmos.

Graph functions, plot data, evaluate equations, explore transformations, and much more – for free!

Start Graphing >



Four Function and Scientific

Check out the newest additions to the Desmos calculator family.

Four Function

Scientific



Teacher.desmos.com

Find the best digital activities for your math class — or build your own.

Classroom Activities



Learn.desmos.com

Level up your Desmos skills with videos, challenges, and more.

Learn More

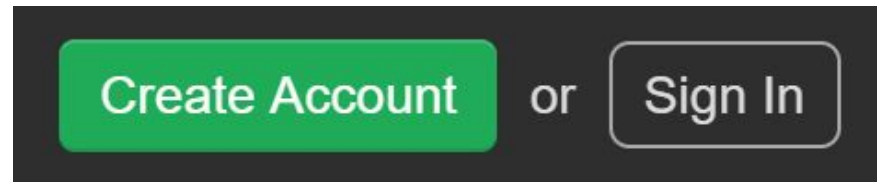
Keeping Track

Desmos allows you to create, save, and share your creations.




- Prep for Instruction
- Classroom Activities
- Answer Keys for graphical representations

Accessible by:


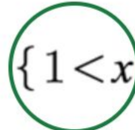
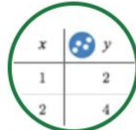

- Creating an account OR
- Sign in with a google-based email

A white modal form titled "Sign In" with a close button (X) in the top right corner. It features a "Sign in with Google" button with the Google logo. Below this is a separator line with the text "Or sign in with Desmos". There are input fields for "Email" and "Password". A link "Forgot your password?" is located to the right of the password field. At the bottom, there is a link "Create an Account" followed by "or" and a green "Sign In" button. A yellow note box at the bottom states: "Note: Desmos uses cookies to enable persistence when you are signed in. If you do not wish to use cookies, please use Desmos without logging in. [Learn More.](#)"

Desmos Learning Tools






Kate ▾   

Tours




Sliders Tables Restrictions Regressions

Resources

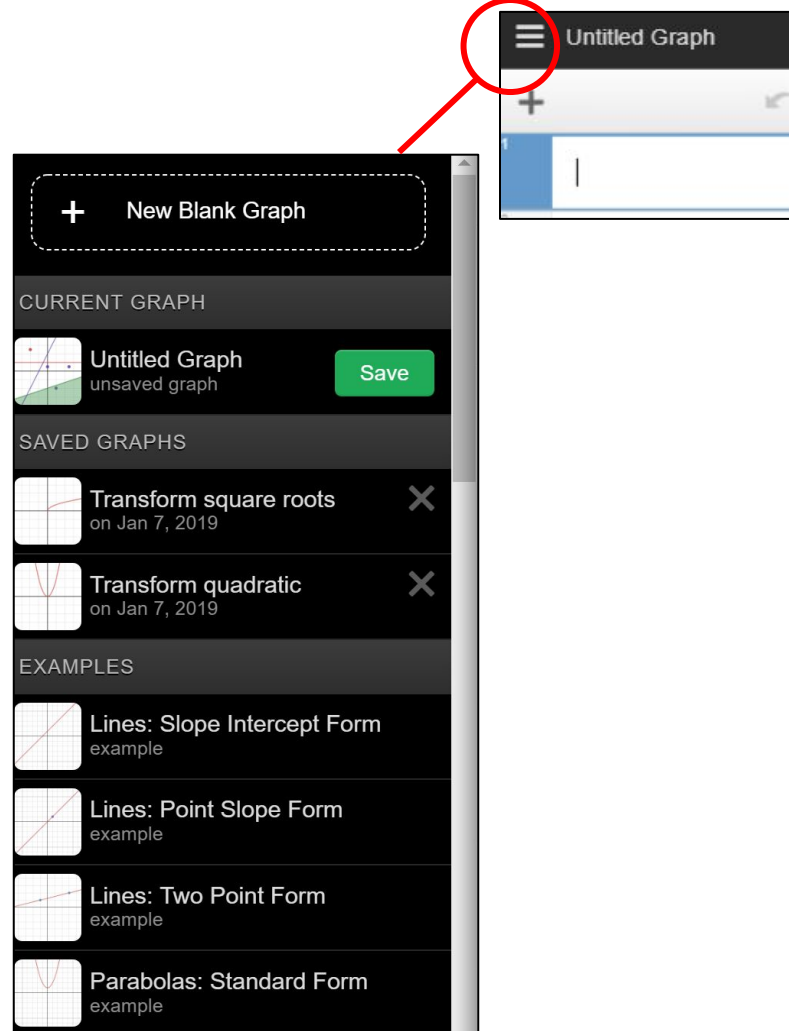
-  Getting Started
-  Video Tutorials
-  Desmos User Guide
-  Help Center
-  Keyboard Shortcuts

Feedback

Send us your question or suggestion... 

Ready-To-Use Material

- Sample Slider examples provided by Desmos
 - Forms of Linear Equations
 - Forms of Quadratic Equations
- Teacher Lesson Planning:
 - Create slider set ups in advance
 - Modify slider samples to make them your own
 - Graph items ahead of time to use within instruction in preparation for guided practice, independent practice, or informal assessments



Teacher Collaboration

- Screen Capture
- Share a link
- Print
- Export
- Embed



Share your graph

Share this link:

<https://www.desmos.com/calculator/h59c3>

Copy



Print



Export Image



Embed

Entering Characters

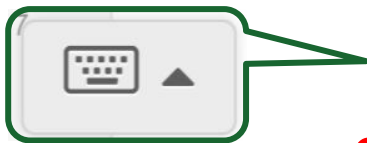
Keyboard can be used for:

- All basic mathematical characters
- Typing out trig functions, statistical functions, logarithmic functions, etc.

Special characters that cannot be entered with the keyboard will require the Desmos multi-function keyboard

- Absolute value, square root, subscripts, inequality symbols, Greek symbols, etc.

Trig	Stats	Dist	Misc
sin	\sin^{-1}	sinh	
cos	\cos^{-1}	cosh	
tan	\tan^{-1}	tanh	
csc	\csc^{-1}	csch	
sec	\sec^{-1}	sech	
cot	\cot^{-1}	coth	

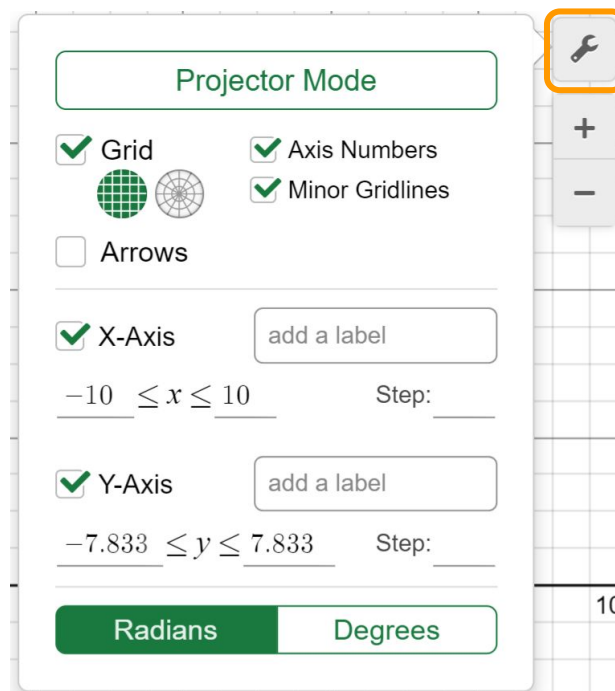


Adjusting Views



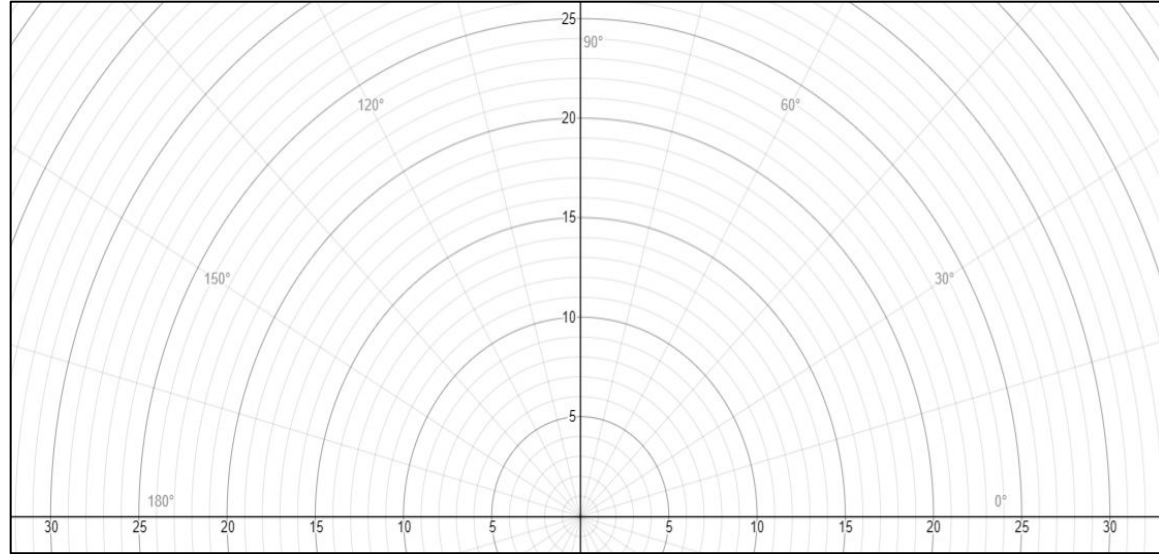
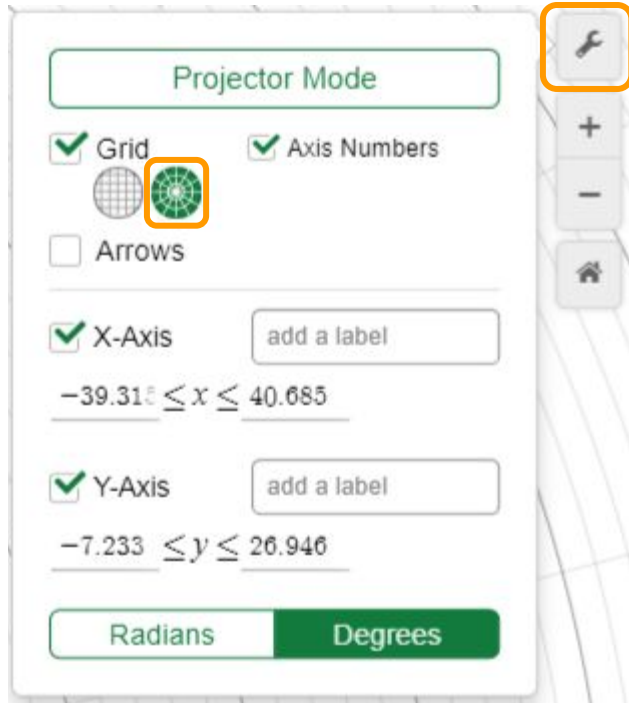
Full Screen Graph

Graph will Zoom In (+)
and Zoom Out (-)



- Graph modifications (restrict domains or ranges, add labels to axes, set scales);
- Similar to the “Mode” and “Windows” on a physical graphing calculator

Protractor View



Coordinate plane changes to a circular overlay of degrees.

ACTIVITY 1: Sliders

1. Graph $y = 4x - 3$.
2. Create a linear equation slider ($y = mx + b$) and adjust m and b values to approximate the line that is parallel to the given line.
 - Use the zoom feature to verify the lines are parallel
 - Record the equation of your approximated line in slope-intercept form
3. What is the relationship between the slope of each line?
4. What is the relationship between the y-intercept of each line?

ACTIVITY 1: Sliders

1. **Graph $y = \frac{1}{4}x$**
2. Create a linear equation slider ($y = mx$) and adjust **m** values to approximate a perpendicular line.
 - Use the protractor feature to assist in locating the perpendicular line
 - Represent the slope of the perpendicular line as a fraction in simplest form
 - Record the equation of your approximated line in slope-intercept form
3. What is the relationship between the slopes of each line?

ACTIVITY 1: Sliders

Skills

- Graph lines.
- Create a linear equation slider.
- Identify slope relationships in parallel and perpendicular lines.
- Prove the slope criteria for parallel and perpendicular lines.

◆ **G: G-GPE.B.5**

Vocabulary

Coordinate
Linear Equation
Slope
Intercept
Slope-Intercept Form
Parallel
Perpendicular

Instructional Activities to Support Instruction



Teacher.desmos.com

Find the best digital activities for your math class — or build your own.

Classroom Activities

- In Desmos, you can sign-in as a teacher or a student.
- The teacher dashboard has additional features for classroom management and instructional support.



You will begin as a student.

student.desmos.com

Welcome!



Enter your class code:

Join

Sign in to come back to your work later:



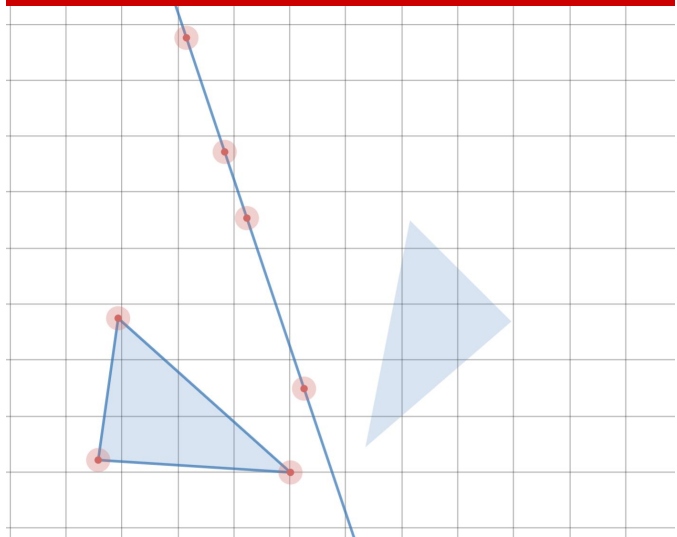
Sign in with Google

or

[Sign in with Desmos](#)

Transformations with Desmos

Explore



Practice

Hey, students!

Go to student.desmos.com
and type in:

V89 NYX

Transformations with Desmos

Polygraph

Hey, students!

Go to student.desmos.com
and type in:

Z5R CAJ

Challenge

Hey, students!

Go to student.desmos.com
and type in:

UCY AFR

Instructional Activities

Skills

- Represent transformations in the plane.
 - ◆ **GM: G-CO.A.2**
- Develop definitions of rotations, reflections, and translations.
 - ◆ **GM: G-CO.A.4**
- Specify a sequence of transformations that will carry a given figure onto another.
 - ◆ **GM: G-CO.A.5**

Vocabulary

Transformation
Translation
Reflection
Rotation
Dilation
Center of Rotation
Angle of Rotation
Line of Reflection
Center of Dilation
Scale Factor
Congruent
Similar

[Home](#)[Most Popular](#)[Latest](#)

BUNDLES

[Conics](#)[Exponential](#)[Expressions](#)[Functions](#)[Inequalities](#)[Linear](#)[Linear Systems](#)[Modeling](#)[Quadratic](#)[Transformations](#)

Desmos Classroom Activities

At Desmos, our mission is to help every student learn math and love learning math. With that in mind, we've assembled a collection of unique and engaging digital activities, which are free for you and your students.

[Watch the video](#)

What We Offer



Meaningful Feedback

We show students what their answers mean, then give them the opportunity to improve their thinking and revise their work.



@LisaGCeja

So proud of the creative thinking today from my #algebra 1 students using @Desmos #marbleslides. #edtech #desmos

Take a moment to create your account.

desmos

Search for an activity



Access to additional pre-made activities from the **Desmos Community**

Create Account

or

Sign In

Home

Most Popular

BUNDLES

Conics

Exponential

Expressions

Functions

Inequalities

Linear

Linear Systems

Modeling

Quadratic

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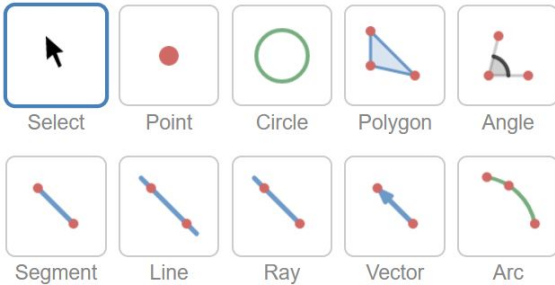
Watch the video

Desmos' Pre-made activities organized by topic and bundled for your convenience

Constructions with Desmos

Experiment

Construct Transform



om/geometry

Special Features

More Tools



Compass (Segment + Point)



Midpoint (Segment)



Parallel Line (Line + Point)

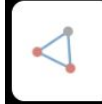


Perpendicular Line (Line + Point)

Traditional



Perpendicular Bisector
example



Equilateral Triangle
example



Pythagorean Theorem
example

ACTIVITY 3: Constructions with Desmos

- **Desmos Geometry Scavenger** - resource created by the designers of Desmos.
- Allows users to practice and become familiar with the capabilities of the Geometry Tool
- A copy of this document has been provided in the session materials on the Teacher Leader Summit App/Website.



Beginner

These beginner challenges are appropriate for upper elementary, middle, and high school.

1. I can create three points and connect them with segments. ([Solution](#))
2. I can create a line, a ray, and a vector. ([Solution](#))

ACTIVITY 3: Constructions with Desmos (Extension)

- Please follow along with the presenter or with the guided directions provided in the session materials on the Teacher Leader Summit App/Website.

Construction One

1. What is the relationship between the two circles? Justify your answer.
2. What type of triangle has been created? Justify your answer.



Construction Two

3. What “mystery figure” has been created? Justify your answer.

Construction Three

4. What is the relationship between the two circles? Justify your answer.
5. What type of triangle has been created? Justify your answer.



ACTIVITY 3: Constructions with Desmos

Skills

- Construct an equilateral triangle
- Construct a rhombus
- Construct a perpendicular bisector.
- Prove mathematical constructions to illustrate understanding

◆ LEAP.I.GM.3 (GM.G.CO.D)

Vocabulary

Point
Circle
Angle
Radius
Rhombus
Endpoint
Line Segment
Equilateral Triangle
Point of Intersection
Perpendicular Bisector

Next Steps & Contacts

NEXT STEPS:

- Play around in Desmos! Go through these tools again and focus on incorporating them in a way that supports your instructional approach.
- View the interactive tutorials and videos provided by Desmos to learn even more of what Desmos has to offer.
- Play around in Desmos! Find a teacher friend and go through the interactive activities again and focus on incorporating them in a way that supports your instructional approach.

CONTACTS:

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assessment@la.gov

Questions???

