Creating Desmos eTools

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Using Desmos

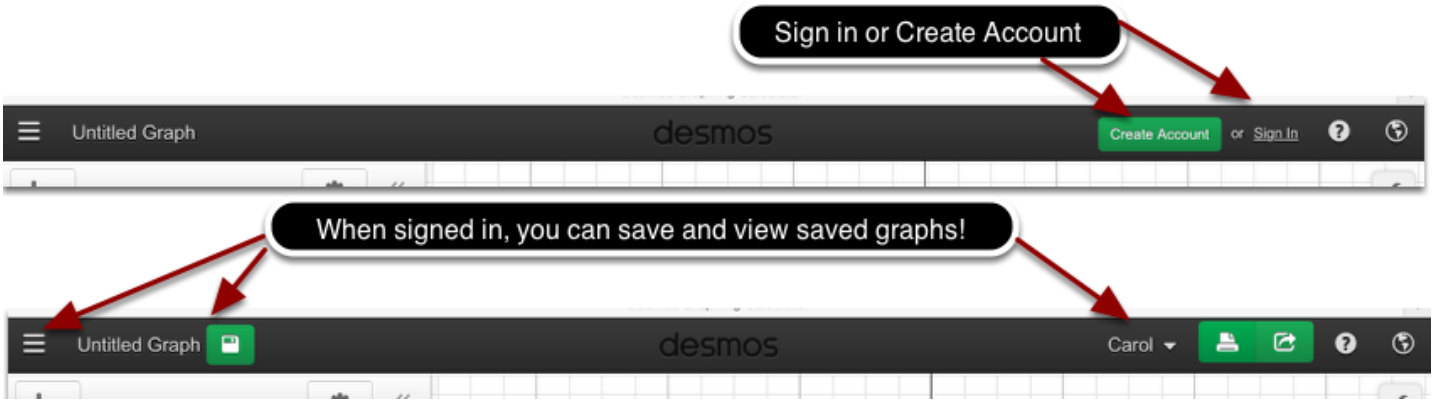
Creating & Using a Desmos Account (Top Black Bar)

Students and teachers would benefit by attaining a Desmos Account in order to save their work and share with others.

EXPLORE:

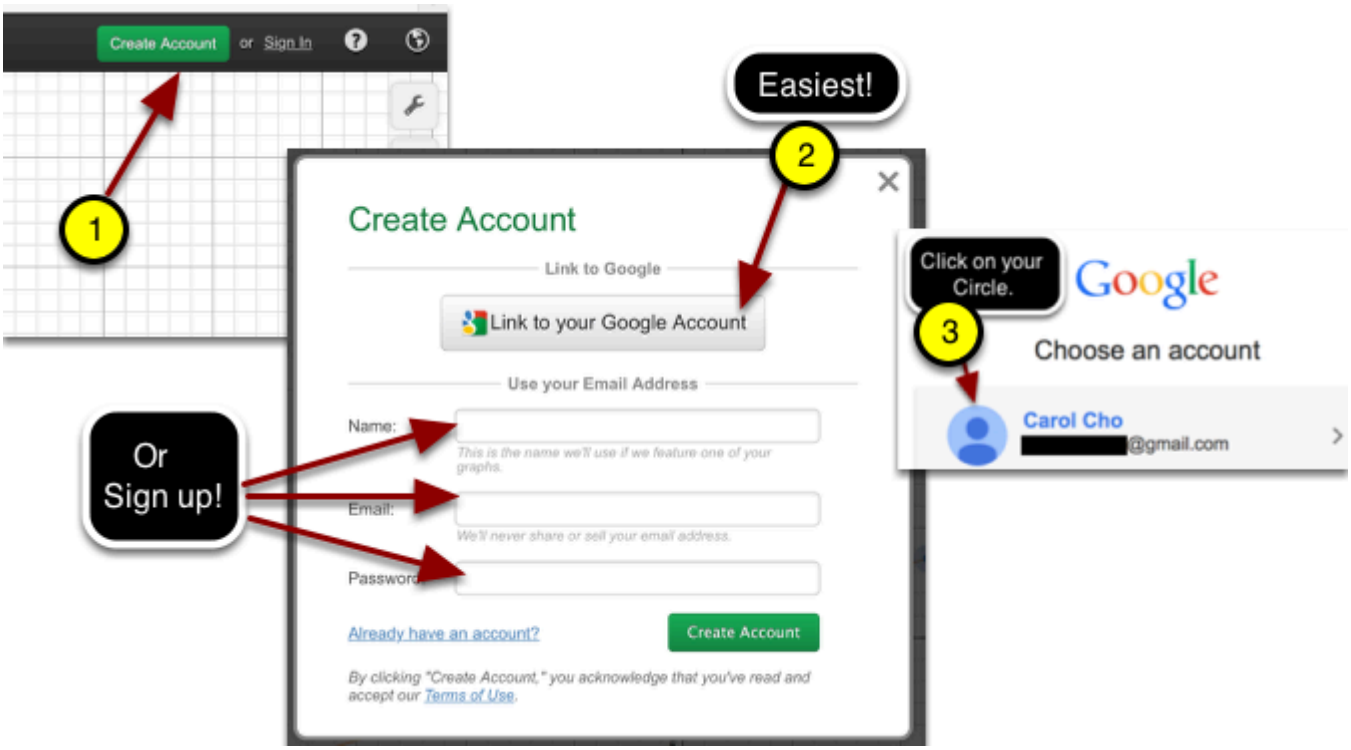
[Desmos Calculator]

- Look at the top BLACK bar.
- Click all words and icons on the top bar. What do each do?



TASK: Get a Desmos Account

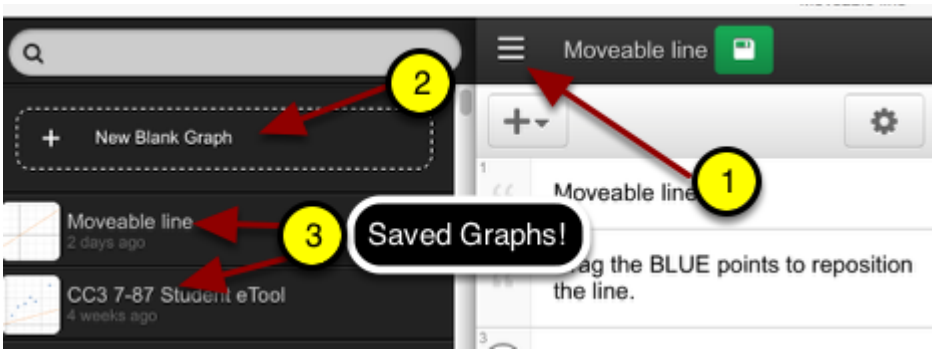
- Click on "Create Account".
- We recommend using your Google Account because it is easy and no new password to remember!
- Or, you can create a Desmos Account.



SAVE:

To access your Saved projects or create a New Blank Graph:

1. Click on the three parallel bars to open and close your saved graphs!
2. Click on any saved project. Then click on the "Open Graph".
3. Click on "New Blank Graph" to create a new graph.



Domain/Range & Axis Labels & Zoom: (Right side Icons)

You will create a graph changing the Domain/Range, adding labels, and zooming in and out.

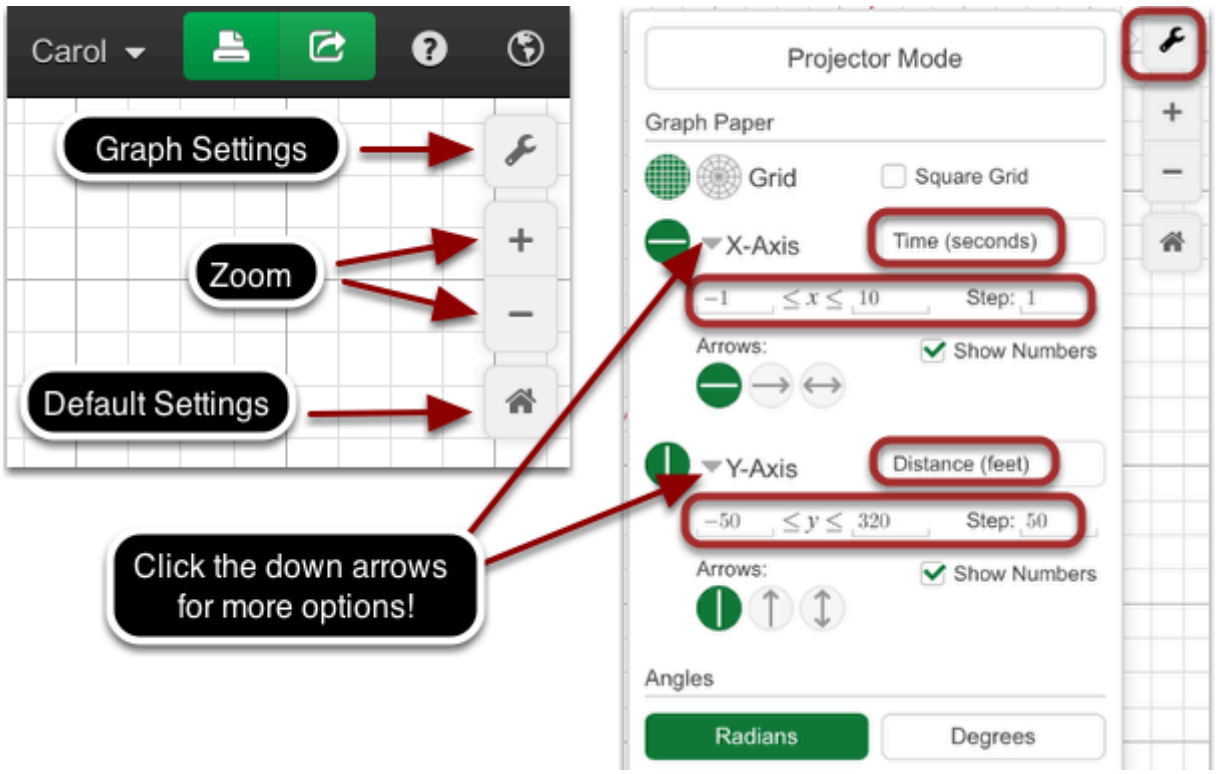
EXPLORE:

The following is an example of the task you will be doing.

Time/Distance Graph

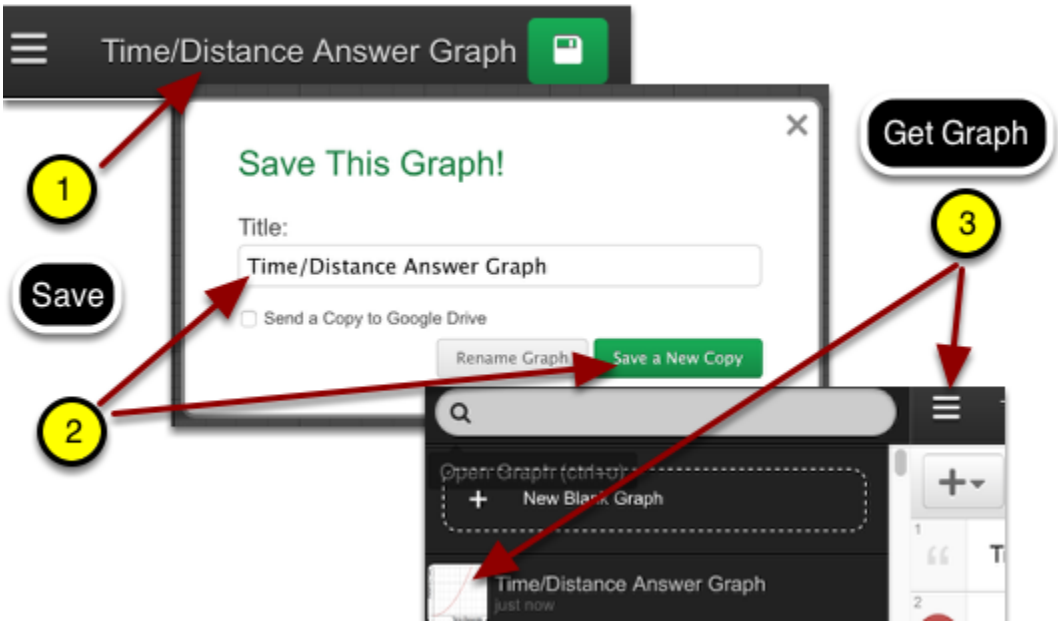
Create:

- Modify the file by domain restricting the function so that the graph is between -1 and 10 seconds.
- Scale the y-axis from -50 to 320 feet.
- Add the labels Time and Distance on the x- and y-axis.



SAVE:

- Rename the graph
- Save to your Desmos Account!


Time/Distance Answer Graph
Save This Graph!
Title:
Time/Distance Answer Graph
Send a Copy to Google Drive
Rename Graph
Save a New Copy
Get Graph
Save
1
2
3
New Blank Graph
Time/Distance Answer Graph
just now

Adding Items in the List Tray: (Left Light Gray Bar)

EXPLORE: Click on the "Bar Graph" link below.

Then explore the items in the light gray bar at left!

- Click on the arrow next to the "+" sign. Try each option.
- Click on the arrow in front of "Bar Graph". Then click the Gear icon/"Done" to exit. What is its purpose?
- Click on the "<<" icon twice! What is its purpose?

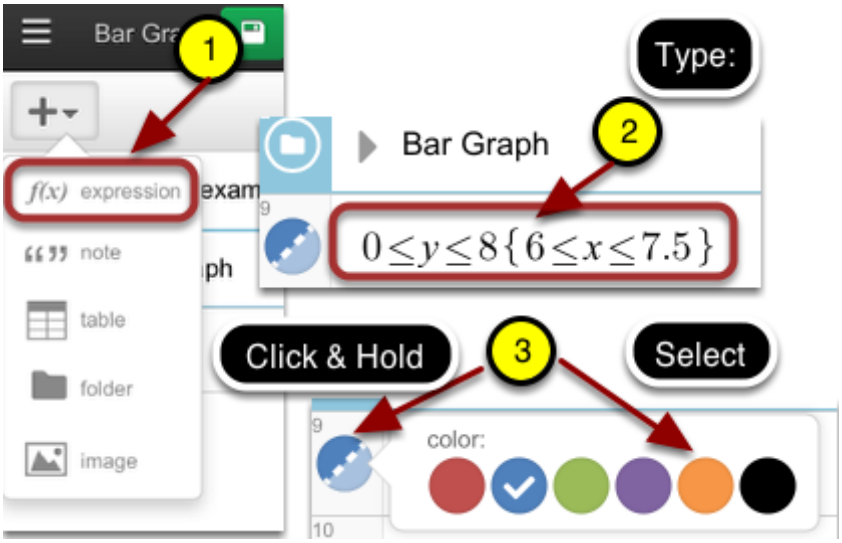
Bar Graph

CREATE:

- Add a 5th orange bar.
- Make the width 1.5 units and the height 8 units.
- Add an Orange image and position it above the orange bar.
- Add your steps inside the Bar Graph folder.

Step 1: Add the orange bar.

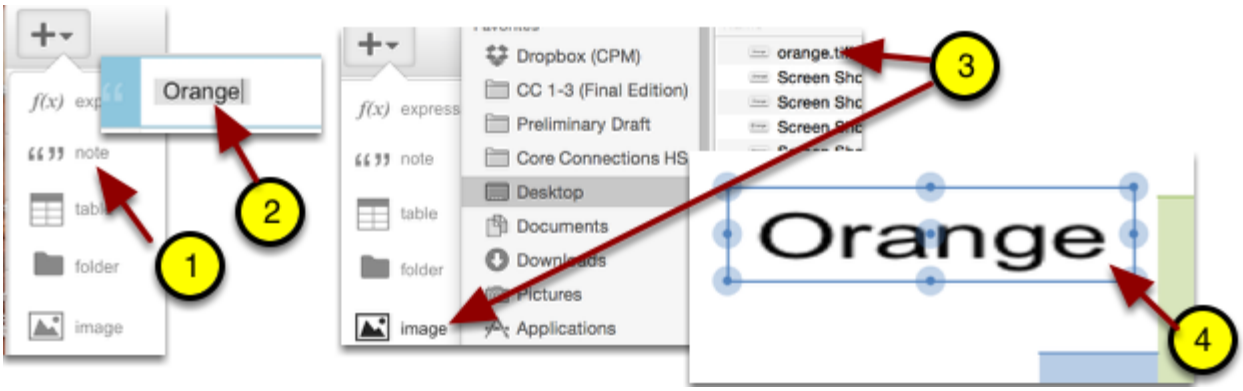
1. Click the "+arrow" button and select "f(x) expression".
2. Type in the function. You may need to access the bottom left key board icon to select from a keyboard.
3. Change color by clicking the BLUE circle. Hold 3 seconds for the color palette to show. Select the orange color.



Step 2: Make the image that says "Orange".

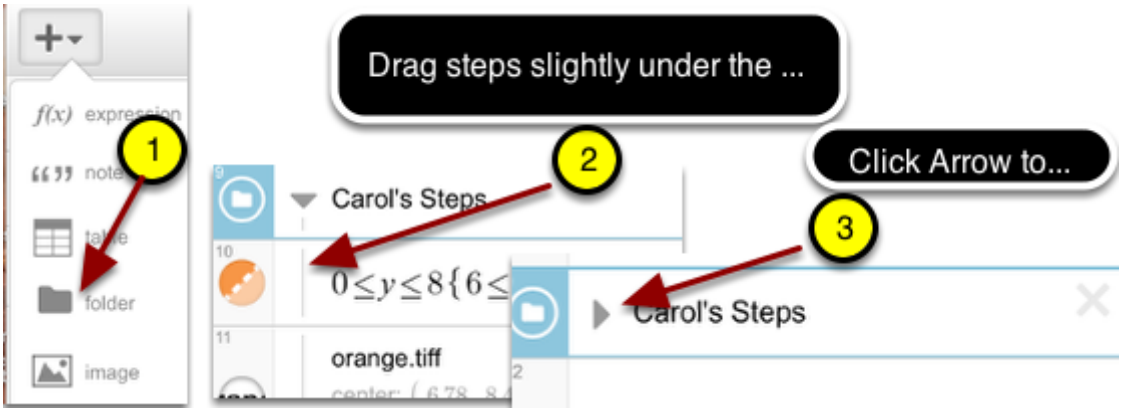
1. Select "Note" from the "+arrow" button.
2. In the new note, type: "Orange". Capture the word using your computer's image capture.
3. Select "Image" from the "+arrow" button. Browse to your image and upload.

4. Shrink the image by dragging the bottom right handle diagonally up. Move the image by click/drag from the center.



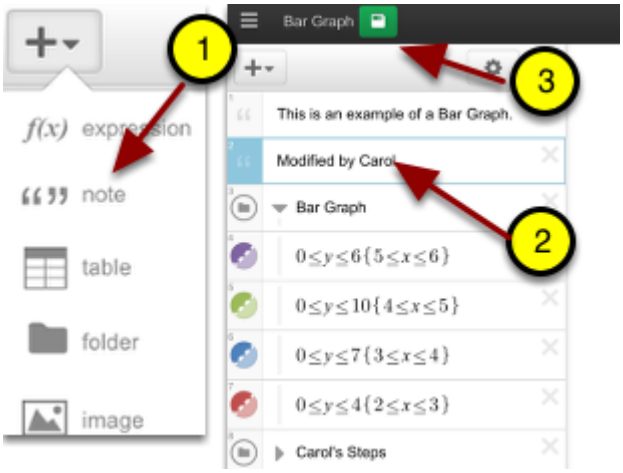
Step 3: Create an additional Folder and move your steps into it.

1. Add folder. Name your folder. Drag the folder icon to any place in the list.
2. Drag your steps just under each other to add to folder. Vertical lines will appear.
3. Click the folder arrow to close.



Step 4: Add a note.

1. Select a new Note.
2. Type on your note: Modified by <your name>. Position the note by dragging the step up or down.
3. Save your work!



SAVE:

1. Click the name of the graph.
2. Rename and Save.
3. Find the graph under the 3 parallel bars!

Create a Moveable Line Using a Moveable Point

EXPLORE:

In the example below:

- Drag the BLUE points.
- Drag along the line.
- Drag the grid.
- Click the arrow in front of "Line" in step 3 to view how this is created!

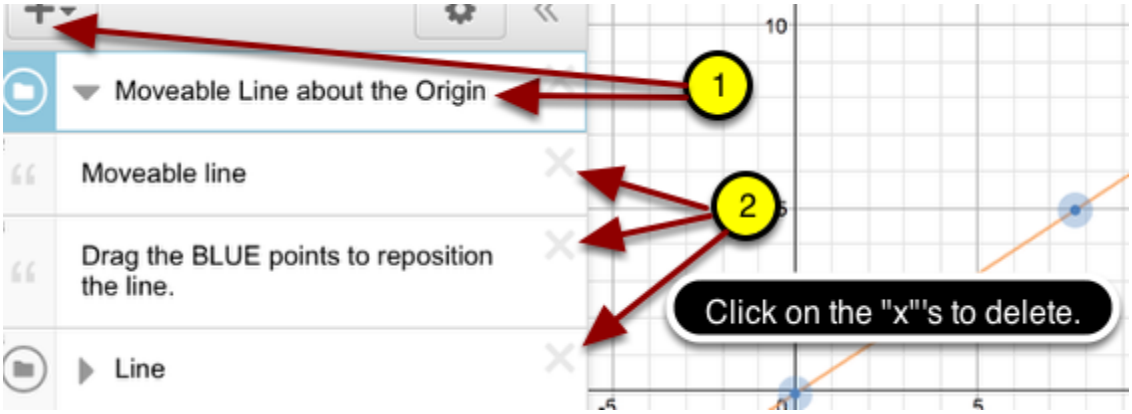
Moveable Line

Create:

Create a line with a stationary point at (0,0) and a moveable point which allows the user to pivot the line about the origin thereby changing the Slope.

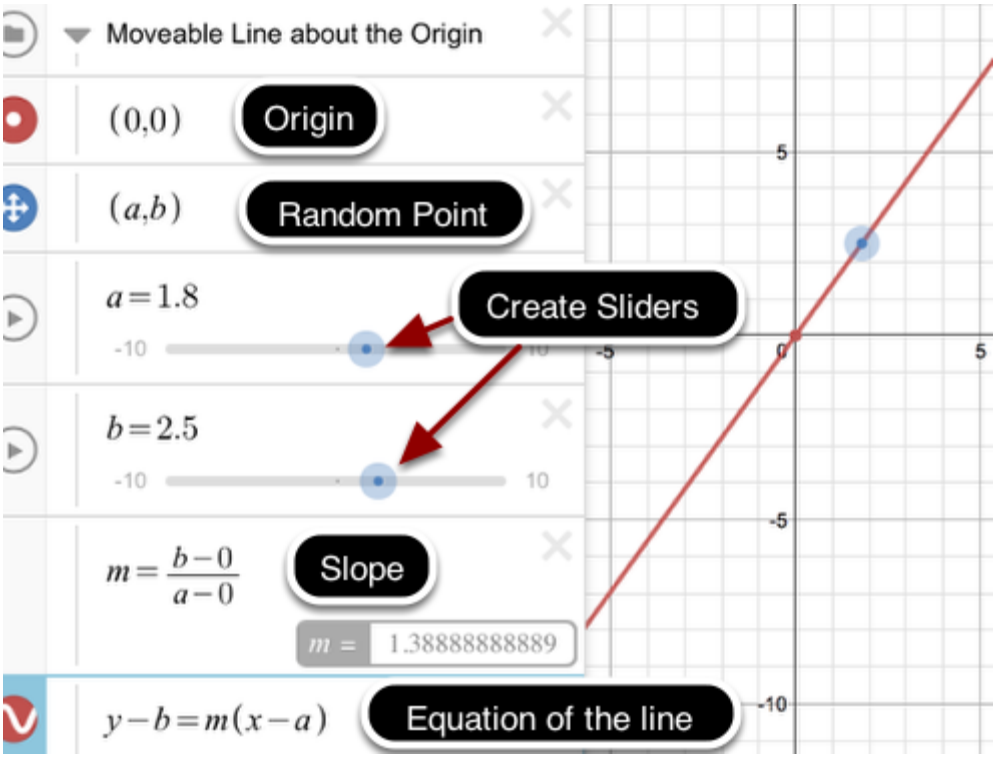
Step 1:

1. Add a new folder from the "+" menu and name it such as "Moveable Line about the Origin"
2. Delete the current lines so that you do not repeat variable names.



Step 2:

- Type the following steps without the comments in the ovals.
- The sliders are automatically created when clicking "add sliders" ALL!



SAVE:

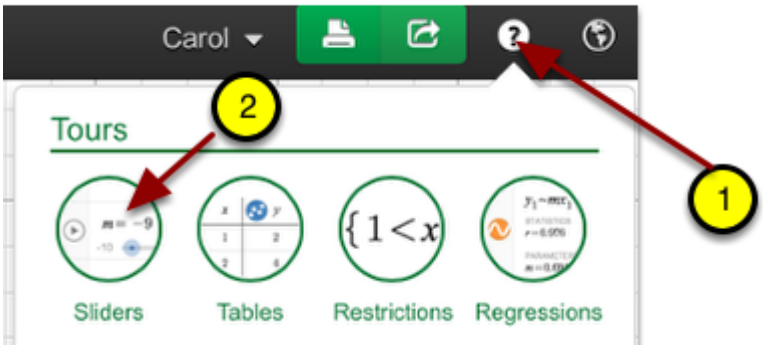
- Click on the "Moveable line" to resave!
- Rename the graph.
- Click on "Save a New Copy".

Creating Sliders

EXPLORE:

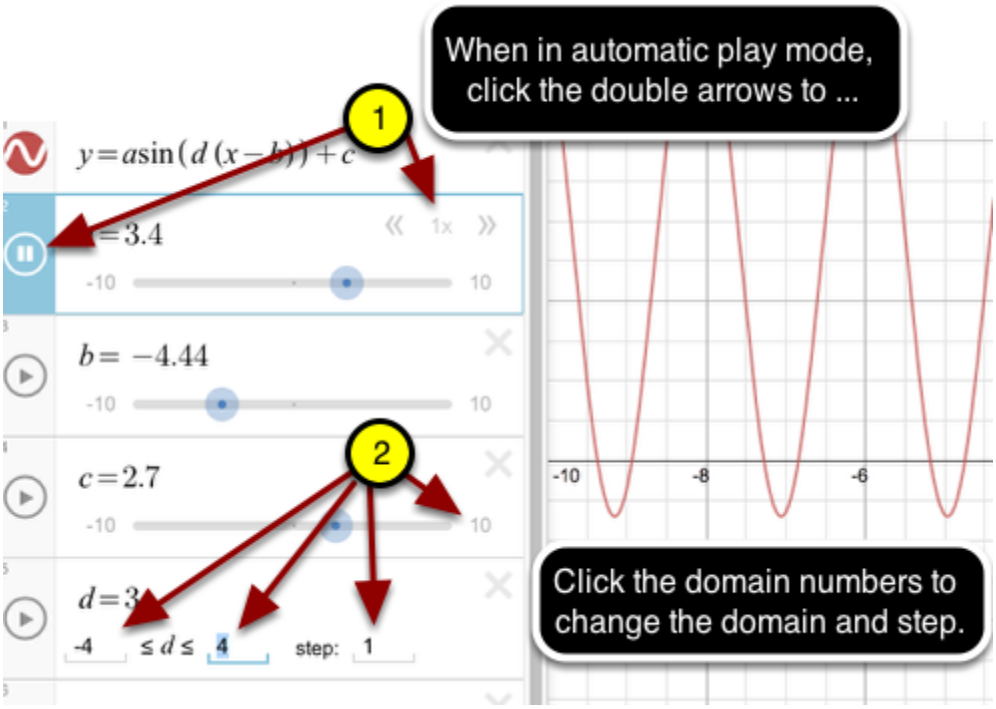
Create Sliders
Desmos has a built in tutorial for sliders:

- Click the "?".
- Click Sliders.
- Follow all of the steps in the tutorial!



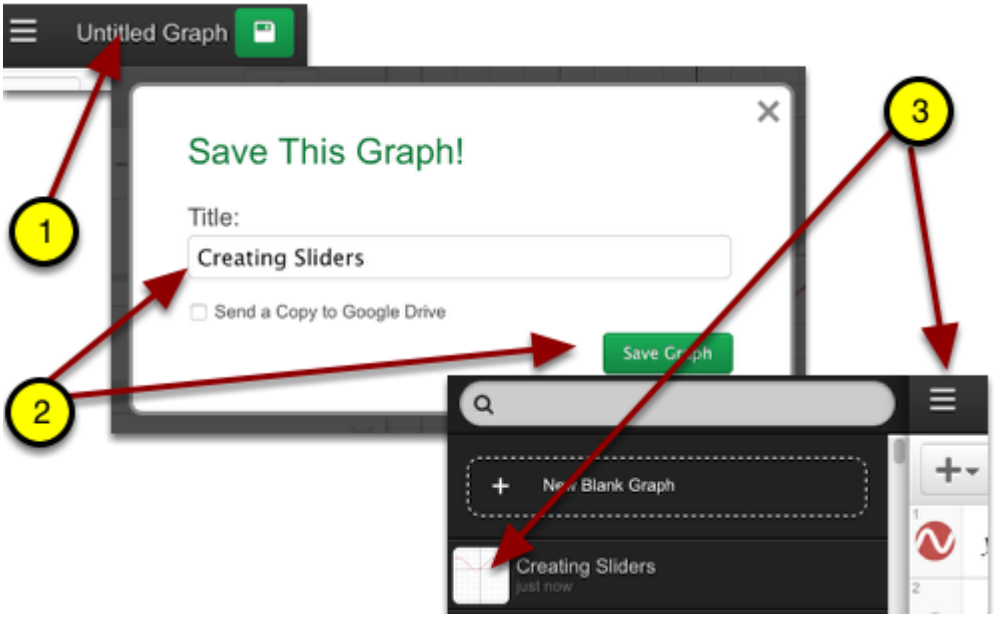
Create:

- Type the equation: y= a sin(b(x-c)) + d
- Add ALL sliders.
- Manually or automatically move the sliders!
- Change the speed when on automatic!
- Change the domain/step of the sliders.



Save:

1. Click "Untitled Graph"
2. Name and "Save Graph".
3. Click the 3 parallel bars to access the file.



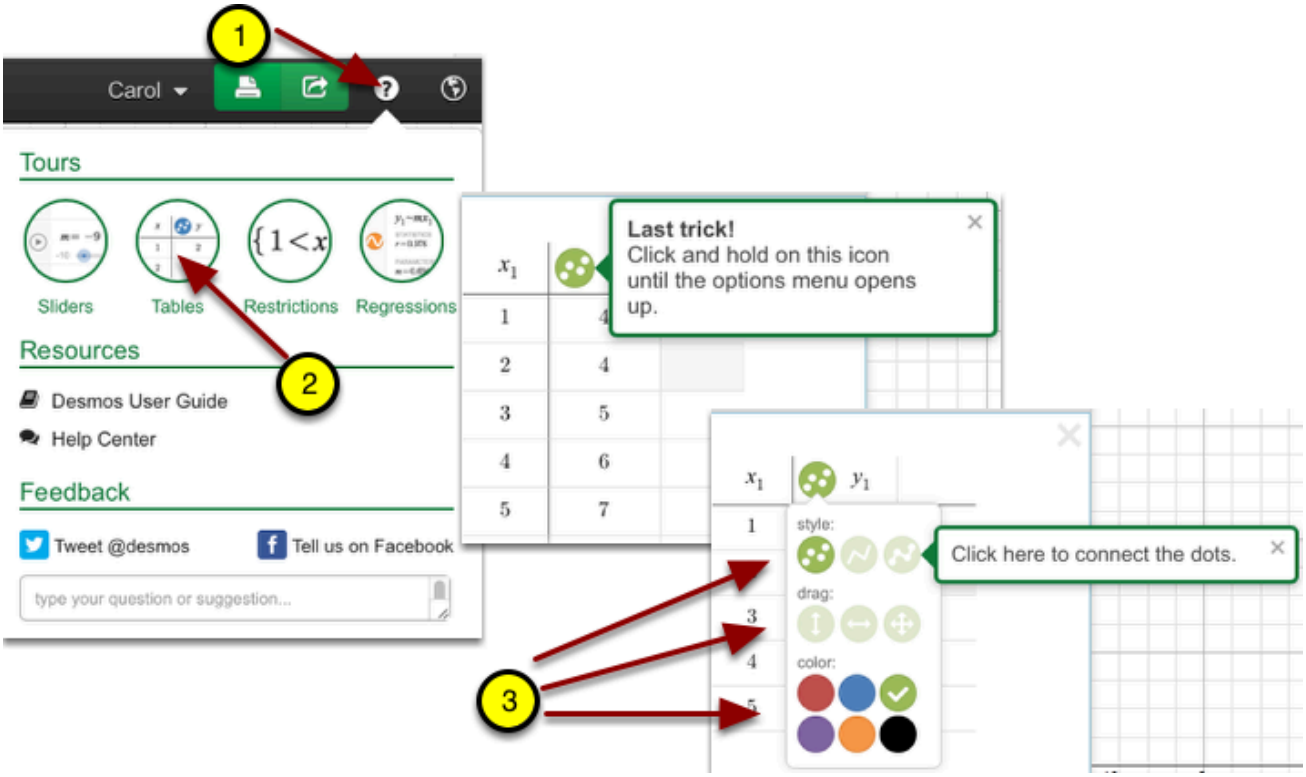
Creating Tables

EXPLORE:

Use the following "New Blank Desmos Graph" to complete the work below.

New Blank Desmos Graph

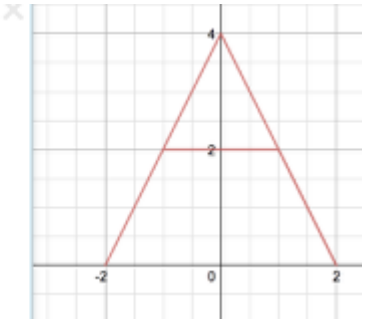
1. At the upper right corner, click the "?".
2. Click "Tables". Follow the directions.
3. Note: When clicking the circle next to "y", try the other submenus.)



CREATE:

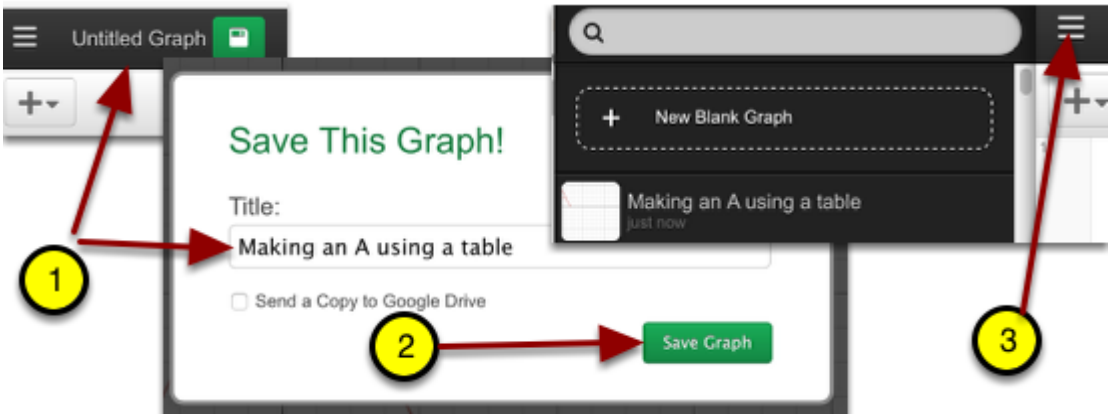
- Create one of the letters in your initials!
- Be sure to connect your points!
- An example for "A" is below!

x_1	y_1
−2	0
0	4
2	0
1	2
−1	2



SAVE:

- Click on the Untitled Graph on the upper left corner. Add a title.
- Click "Save Graph".
- Check your saved list for the file.



Creating Tables: Scatter Plots

EXPLORE:

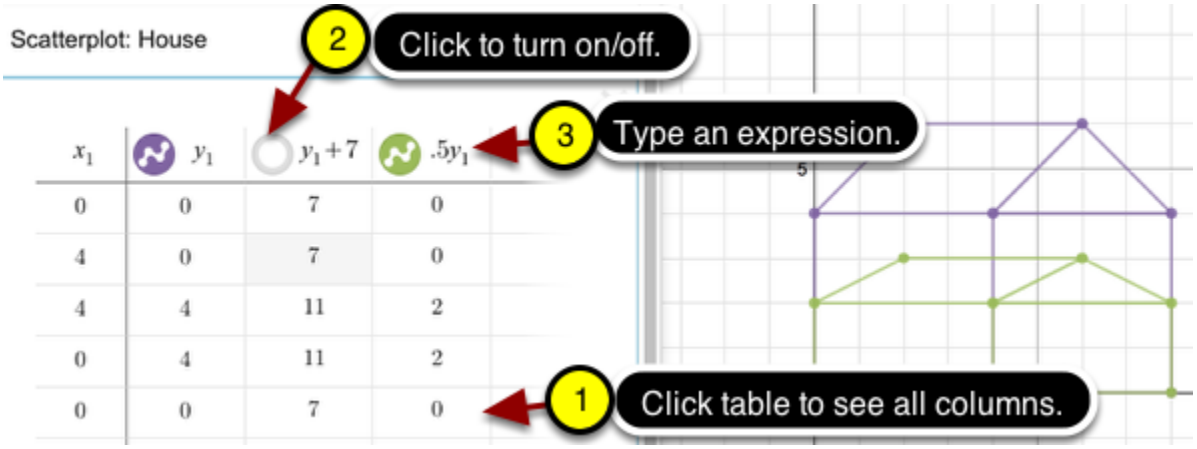
- Click on the link below.
- Scroll down watching the animation showing how to create scatter plots.

Scatter Plots

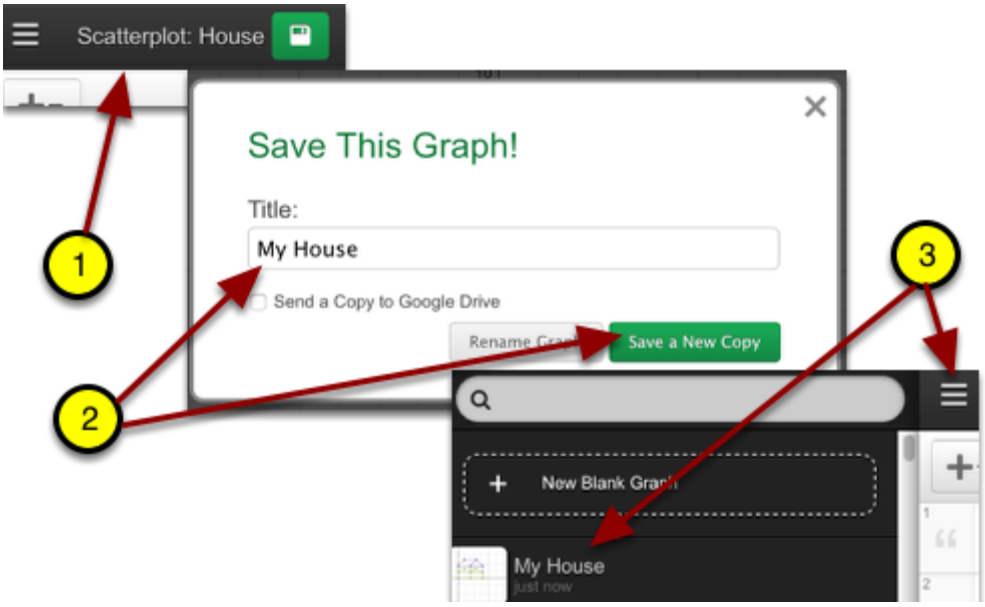
CREATE:

Scatter Plots: House

1. Click the table so that all columns show.
2. Click the white circle in the 2nd column. An orange house will appear above the purple house.
3. Click just after the green circle in the 3rd column to select the column. Type: .5y1



SAVE:



Restricting Domain and Range

EXPLORE:

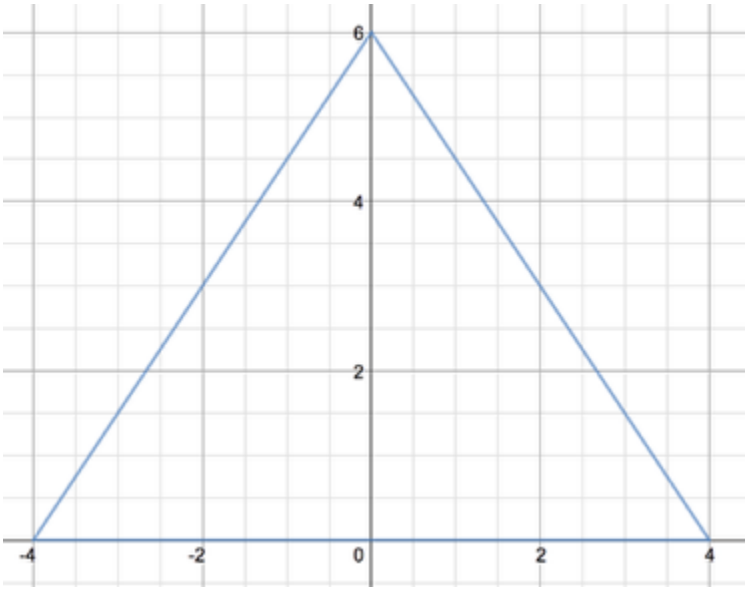
Click on the list below.

Restricting Domain and Range

- Click on the "?" at the upper right of Desmos.
- Click on "Restrictions". Follow the tutorial.

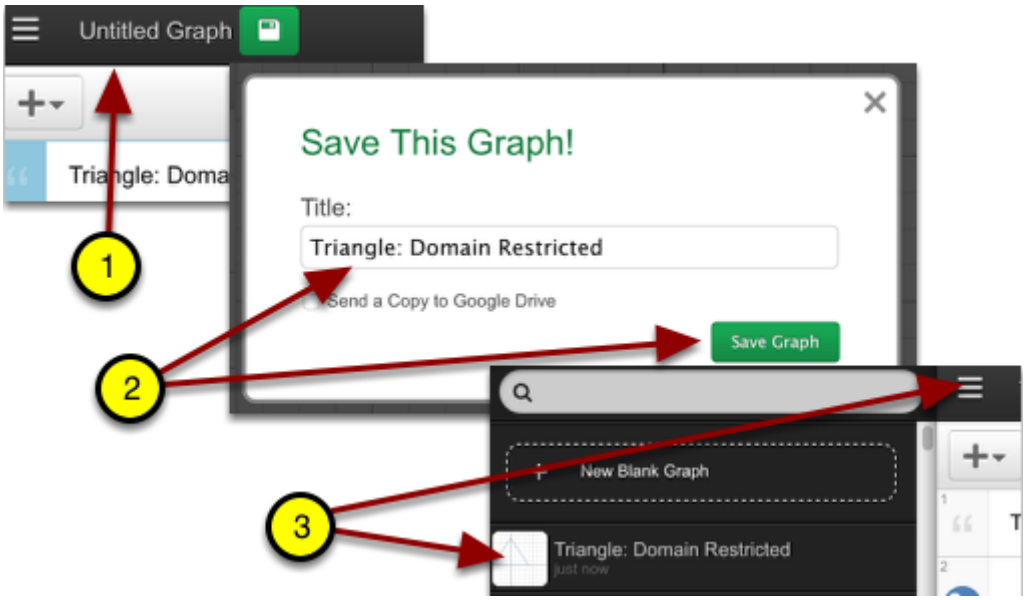
CREATE:

- Add 3 domain restricted equations to draw the triangle below.
- Do NOT use a table.



SAVE:

1. Click Untitled Graph.
2. Rename and "Save Graph".
3. Click the 3 parallel bars to access saved graph.



Geometry

Create a Rigid Moveable Shape

EXPLORE:

- Click on the link below.
- Move the shapes about.
- Look at the expressions under the arrow for several shapes.

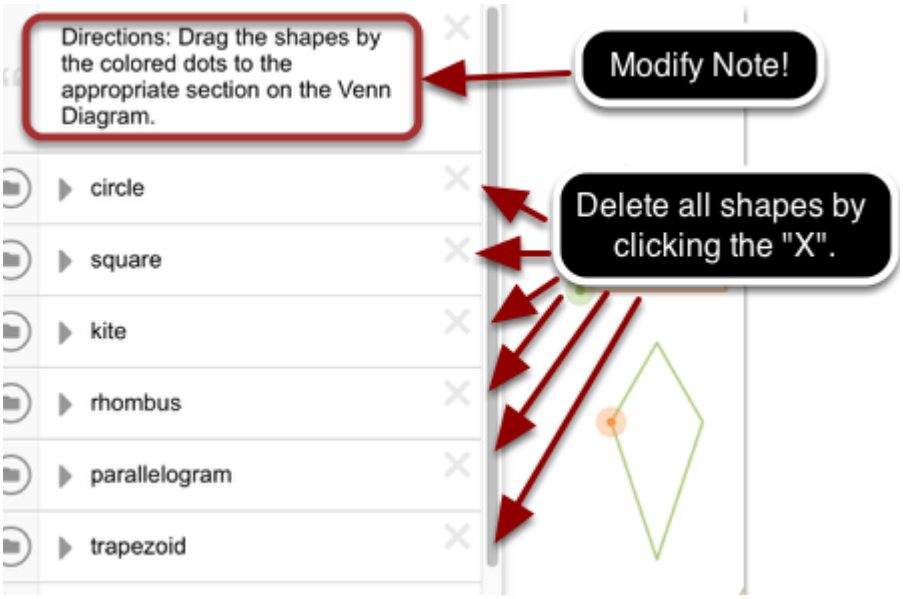
Moveable Shapes

CREATE:

- Create a moveable "L" or other letter of your choice!
- Follow the two steps below.

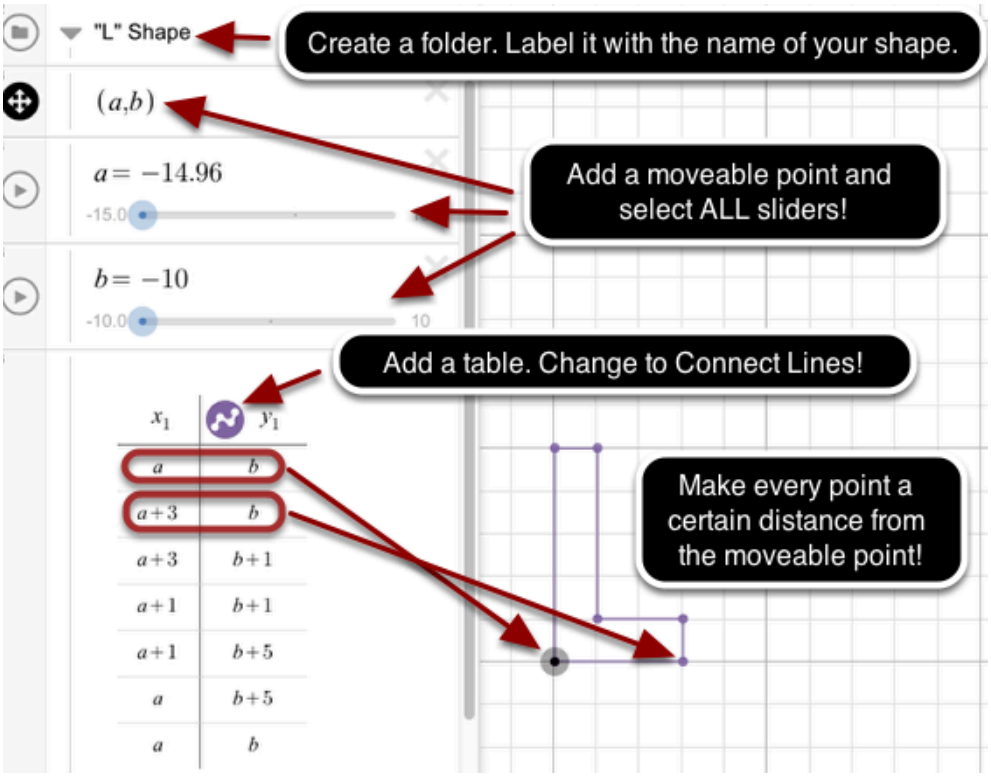
Step 1:

- Delete all of the shapes before starting your own.
- Add your own title or notes.



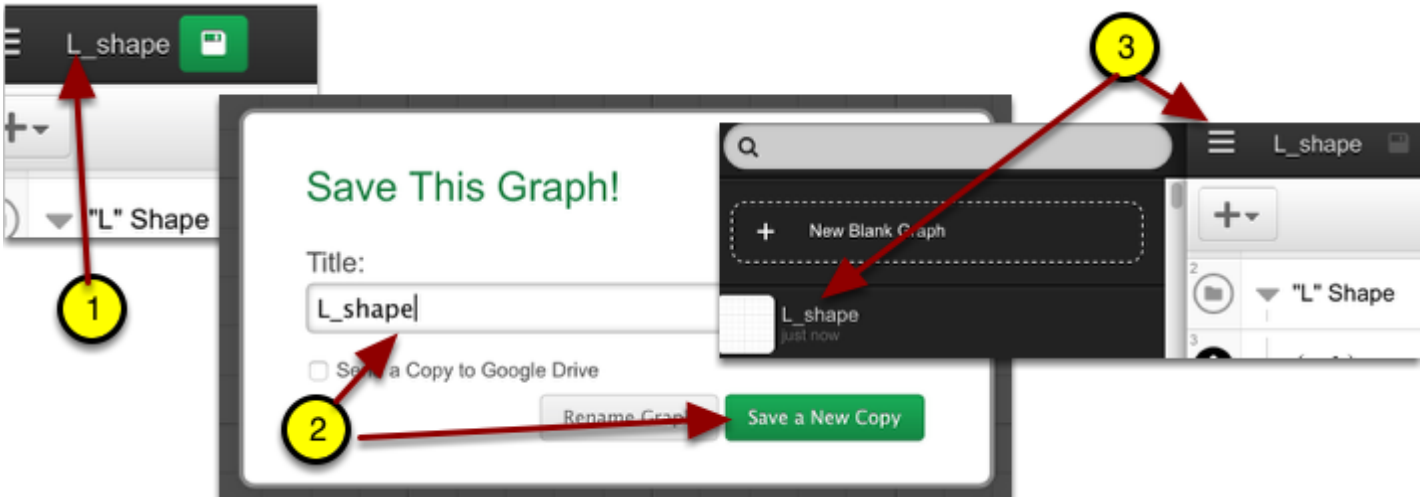
Step 2:

- Follow the steps below to create an "L". Or be creative and make your own shape!
- Add a table. Be sure to click the circle in front of the output and change it to connect lines!



SAVE:

1. Click the name next to the GREEN SAVE BUTTON.
2. Rename & Save.
3. Click the 3 parallel bars to access the saved file in the future.



Create Polygons

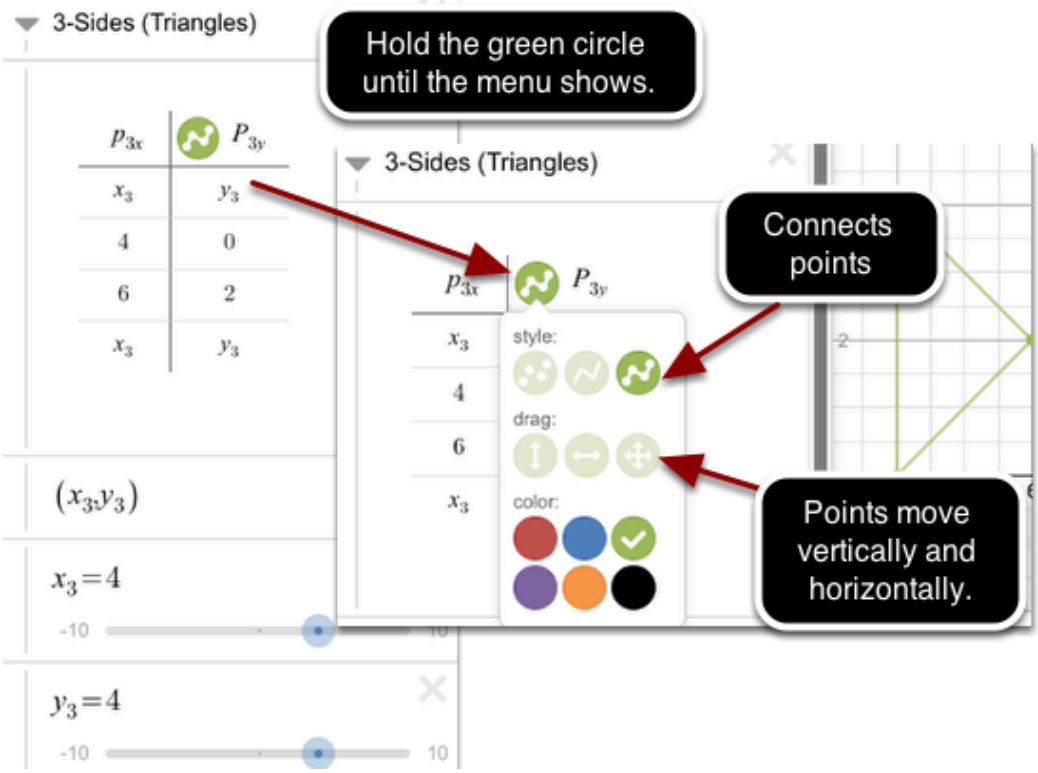
EXPLORE:

- Click on the link below.
- Move each vertex. How many different quadrilaterals can you form?
- Click the arrow on the folder and investigate the table and the moveable point.

Create Quadrilaterals

CREATE:

- Resave the file and call it "Create Polygons".
- Add two more folders. Name the first: 3-Sides (Triangles). Name the second: 5-Sides (Pentagons)
- Below are the expressions and table to add to the 3-Sides (Triangles) folder.
- Add similar expressions and table to add to the folder for pentagons.



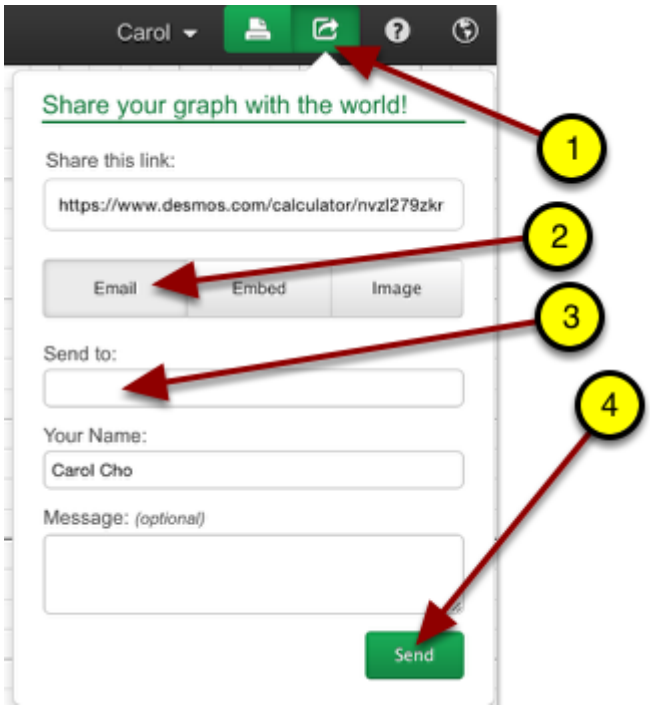
Additional Notes:

- A moveable point must start and end the table to connect the sides of the figure.
- Hold the circle until the menu shows. Select the icon to connect the points and to move them in all directions.
- The variables MUST be unique. Choose a system that makes sense to you. In this case the columns are named P3x and P3y representing the x-column for a polygon of 3 sides and the y-column for a polygon of 3 sides.
- The variable point was named: (x3,y3) for a variable point for the 3-sided figure.

- Check how the variables are named for the 4-sided polygon. Follow a similar pattern for the 5-sided polygon.

SAVE:

- Save your work in your Desmos Account.
- Save the link to your google spreadsheet for your partner to access or email the link to your partner.



Side Lengths & Perimeter

EXPLORE:

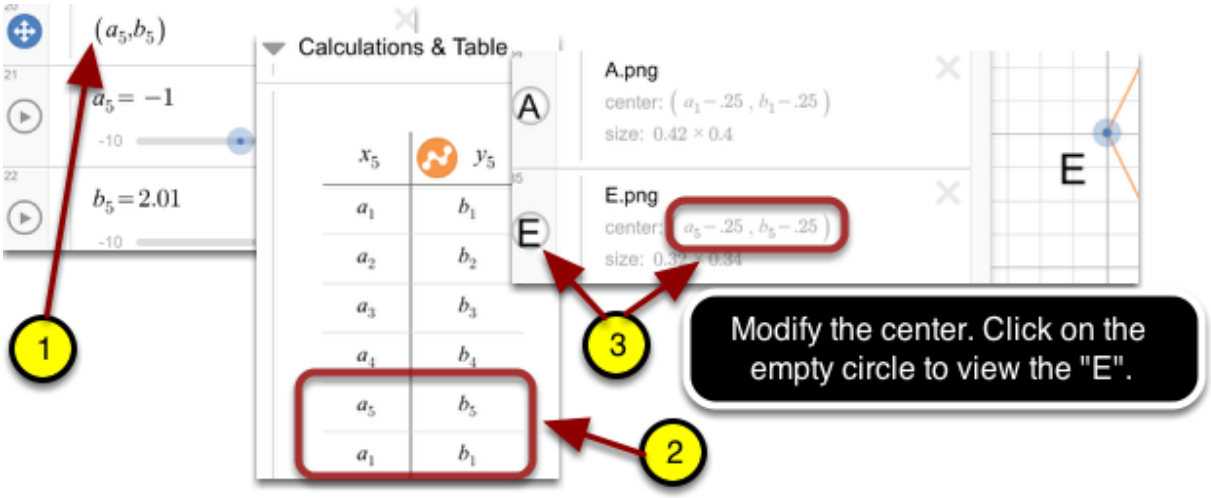
- Click on the link below.
- Drag the vertices of the rectangle. Notice the changes of the side lengths and the perimeter.

Side Lengths & Perimeter

CREATE: 5-sided pentagon

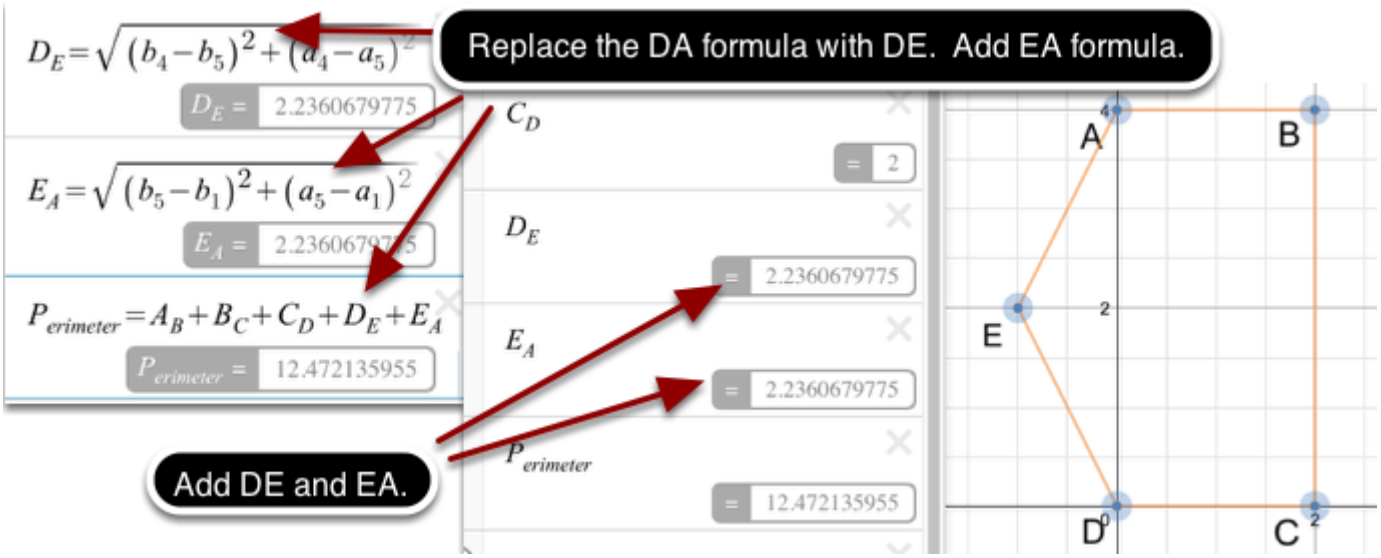
Modify the file:

- Add a 5th point and sliders in the Points folder.
- Add an additional side in the table.
- Link the image "E" (found in the Images folder) to the 5th vertex.



Modify the expressions and formulas found in the Calculations & Table folder.

- Modify the "DA" formula to "DE" formula.
- Add a "EA" formula.
- Change the formula for the perimeter to reflect all 5 sides.
- At the top, add the DE and EA formulas.
- Verify your work!



SAVE:

Rename the file: Pentagons: Side Lengths and Perimeter

Save to your Desmos Account & save to your Google spreadsheet.

Regressions

Creating a Regression Line

EXPLORE:

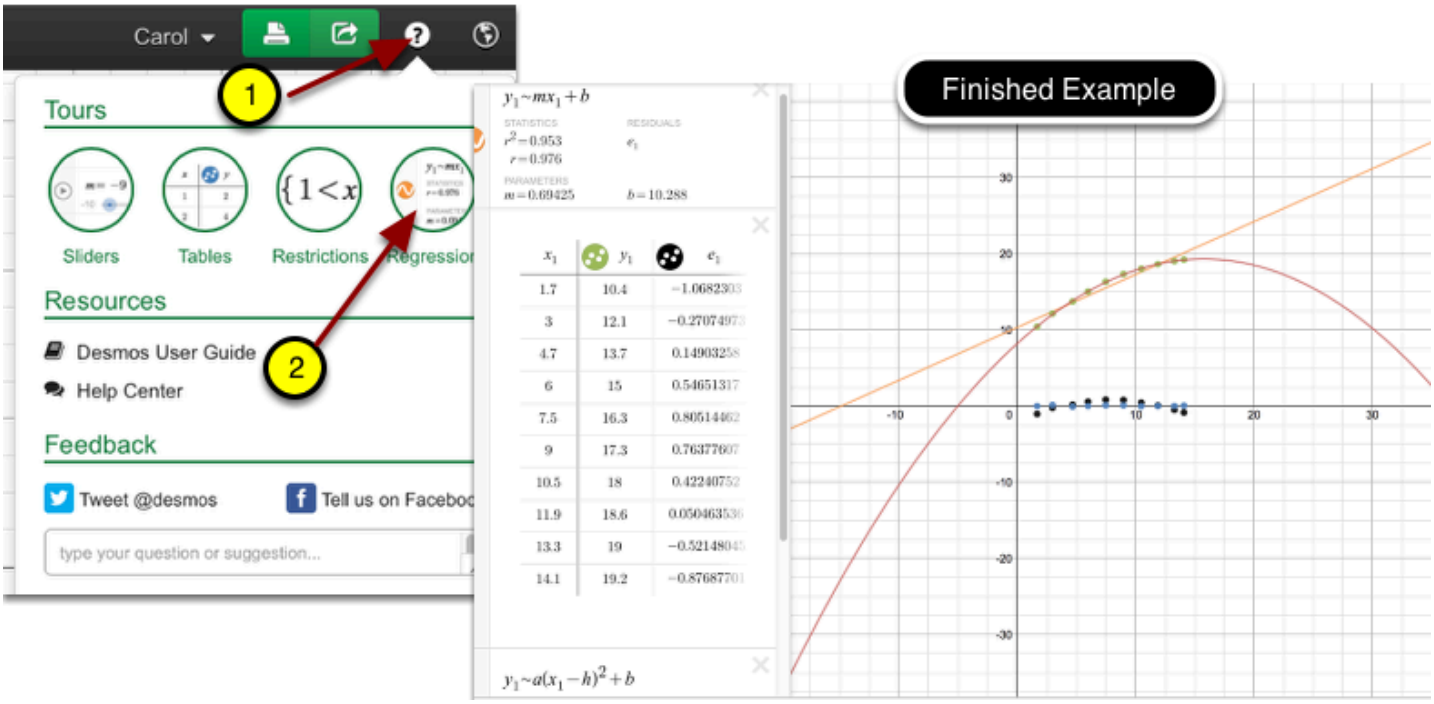
- Watch the video below.
- Click on the "Blank Desmos Graph" to get started!

How To: Create Regressions
Blank Desmos Graph

CREATE:

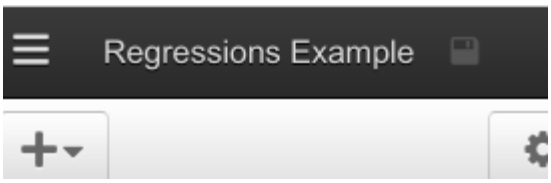
Use the built-in tutorial for creating regressions using Desmos.

1. Click the "?". Then Click the Regressions icon.
2. Follow the given steps.



SAVE:

- Give your finished file a name such as "Regressions Example".
- Save to your Desmos Account. You will be able to go back to it later to modify over it or use it as a guide for a new project.



Creating a Line of Best Fit

Create a moveable line to "fit" over a set of data.

EXPLORE:

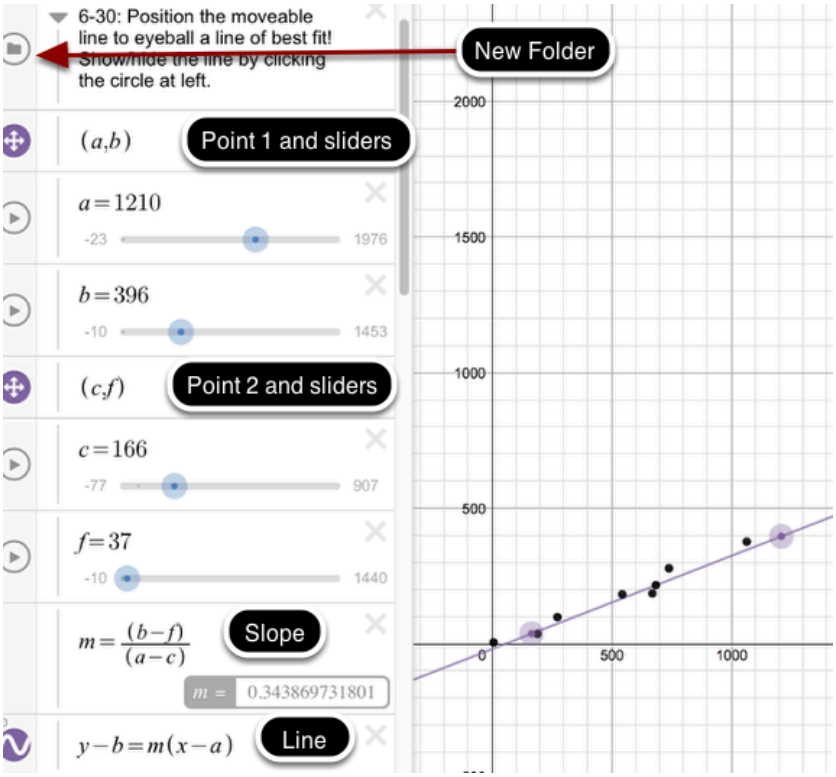
Fit a line to this set of data.

Creating a Line of Best Fit

CREATE: A Moveable Line

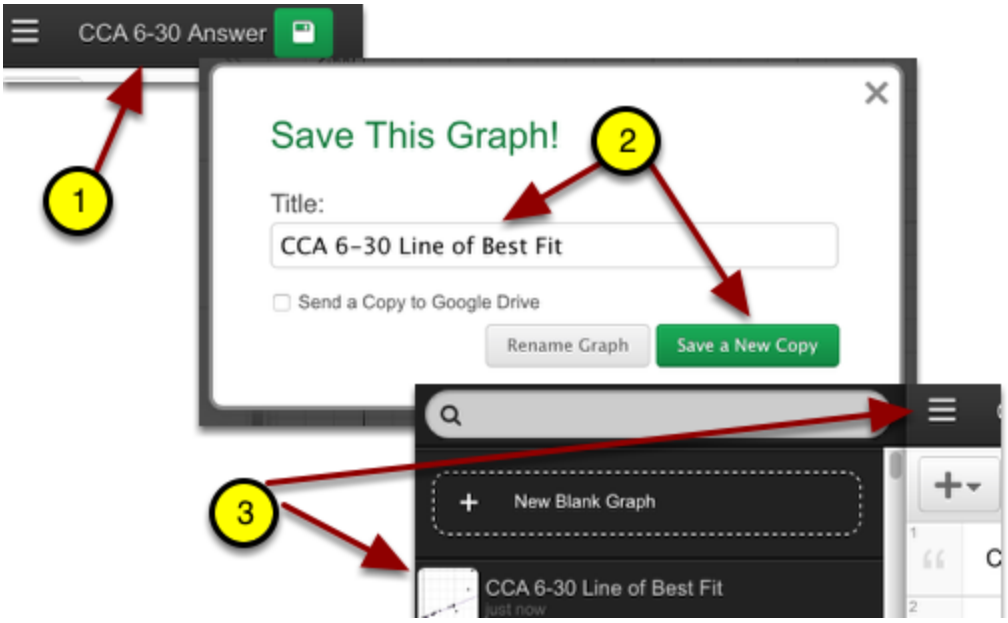
Add a new folder, name it, and add the following expressions below.

- Create 2 moveable points.
- Calculate the slope between them.
- Use the point/slope form of a line.



SAVE:

Save your work to your account.


CCA 6-30 Answer
Save This Graph!
Title:
CCA 6-30 Line of Best Fit
Send a Copy to Google Drive
Rename Graph
Save a New Copy
New Blank Graph
CCA 6-30 Line of Best Fit
just now
1
2
3

Algebra

Inequalities & Shading

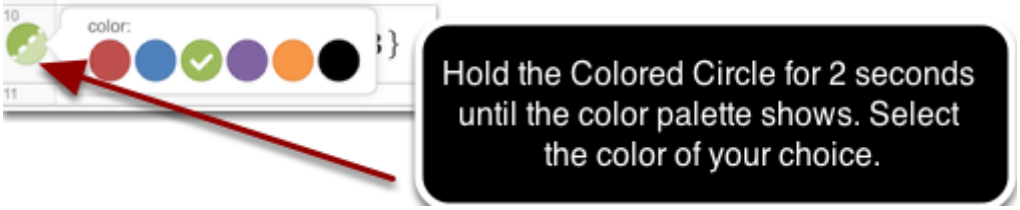
EXPLORE:

- The inequality for each shape is on the left with the same color.
- You can add variables/sliders to the inequalities to allow the shape to change.

[Inequalities & Shading]

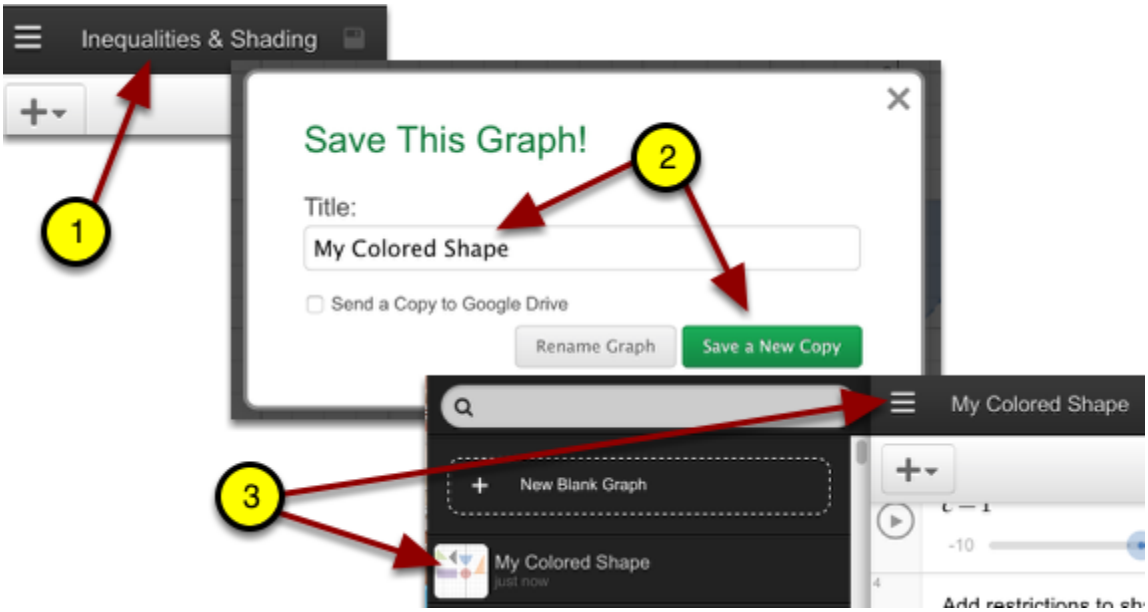
CREATE:

- Delete the shapes on the examples above.
- Create a simple shape writing the inequality which is somewhat different from the examples.
- Shade the interior with a color.



SAVE:

- Click on the "Inequalities & Shading".
- Rename and save.
- View your file.



Piecewise Functions

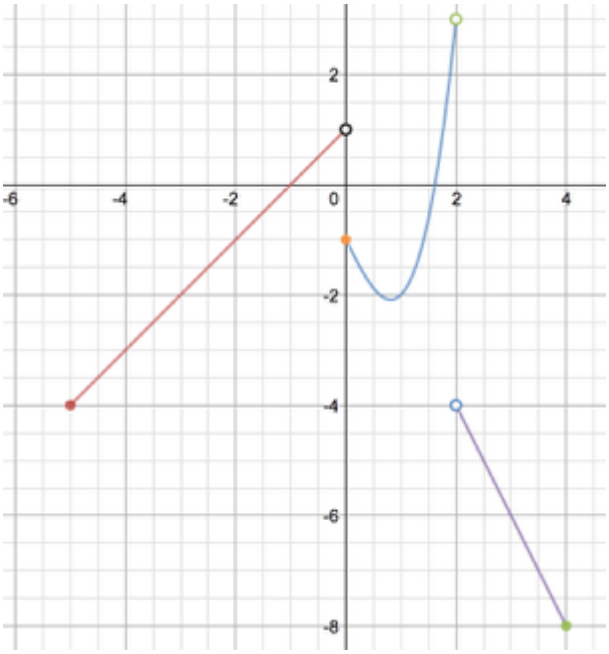
EXPLORE:

- Click on the link below.
- How is each segment of the graph drawn?
- Drag along all segments from beginning to the end. How are the endpoints depicted?

Piecewise Functions

CREATE:

Change the above file so that functions are restricted reflecting the graph below.



EMAIL:

1. Click on the green arrow at the far top right.
2. Click "Email"
3. Add your email address and send it.


Carol
Share your graph with the world!
Share this link:
https://www.desmos.com/calculator/lj3e
Email
Embed
Image
Send to:
Your Name:
Carol Cho
Message: (optional)
Send
1
2
3