

PRE-CALCULUS WITH TRIG - T

Table of Contents

General eTools	3
Algebra Tiles (CPM)	4
Desmos Graphing Calculator	7
Chapter 1	10
PC 1.1.1: View Tube Data Collection Teacher Video	11
PCT 1.1.2: 1-14 & 1-20 Student eTool	13
PCT 1.1.4: 1-43 & 1-44 Student eTool	15
PCT 1.4.2: Unit Circle with Reference Triangles.....	16
Chapter 2	18
Piecewise Functions for TI-84 and Desmos Videos.....	19
PC 2.1.1: 2-2 Student eTool.....	20
PC 2.1.1: 2-2 Answer eTool.....	21
PC 2.2.2: Sigma eTool	22
PC 2.3.1: 2-64 Student eTool.....	23
PC 2.3.2: 2-78 Student eTool.....	24
PC 2.3.4: 2-107 Student eTool.....	25
PC 2.3.5: 2-120 Student eTool.....	26
PC 2.3.8: 2-165 Student eTool.....	28
Chapter 3	29
PCT 3.1.1: 3-1 & 3-2 & 3-3 Student eTools	30
PCT 3.2.2: 3-67 Silent Board Game Teacher eTool.....	33
PCT 3.2.3: 3-82 Student eTool.....	34
PCT 3.2.3: 3-82 Answer eTool	36
Chapter 4	38
PCT 4.1.1: Unit Circle with Reference Angles Teacher Demo (Desmos)	39
PCT 4.1.3: Sine and Cosine Curves with Unit Circle (Desmos)	41



General eTools

Algebra Tiles (CPM)

This tutorial describes how to use the Algebra Tiles including additional features.

Click on the link below to access eTool.

[Algebra Tiles \(CPM\)](#)

1. The top bar has three main parts: Pen & Paper Icon, '?' Icon, and the Arrow Icon.

1. Select the Pen & Paper Icon to:

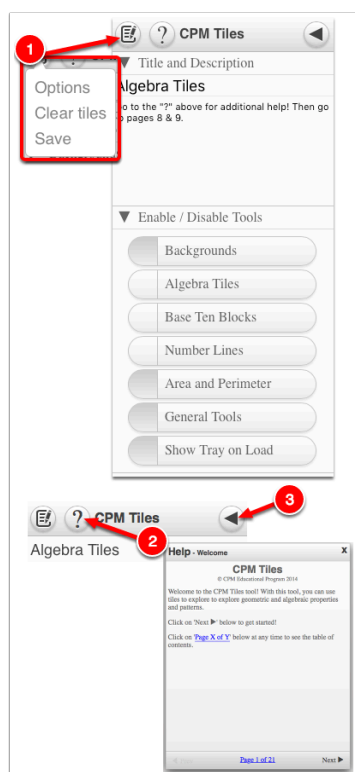
Options - Add Title and Description and Enable/Disable Tools.

Clear Tiles - This will remove all the tiles that are in the tile area.

Save - This will save all the changes made.

2. Select the '?' icon for directions.

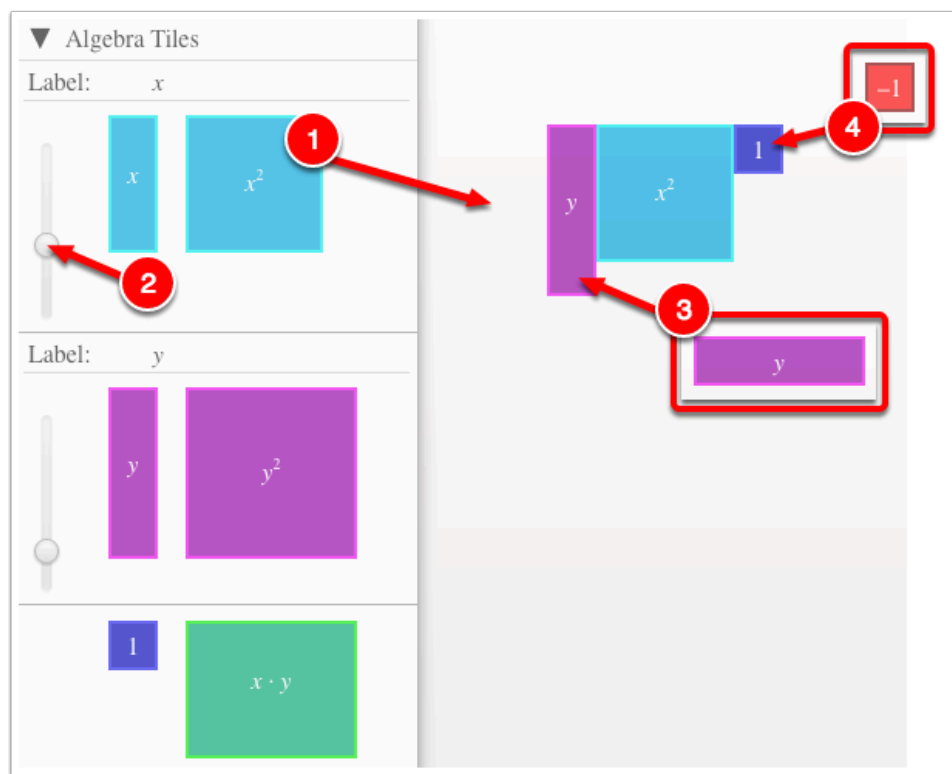
3. Select the Arrow Icon at the right to open and close the tray.



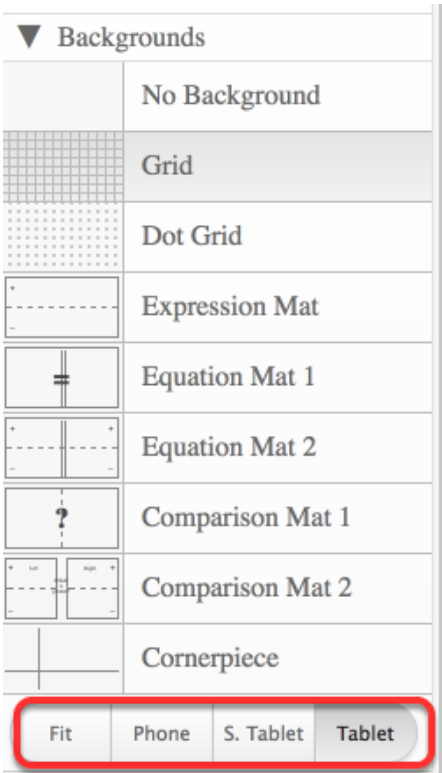
2. Drag tiles from the tray at the left to the display area at the right.

1. Select one of the tiles and drag it to the tile area.

2. Use the sliders in the tray to change the size of the tiles.
3. Double click tiles to change orientation (horizontal/vertical).
4. Click on a tile once to change the sign (+ -).
Note: The color of the tile will turn to red for negative sign.

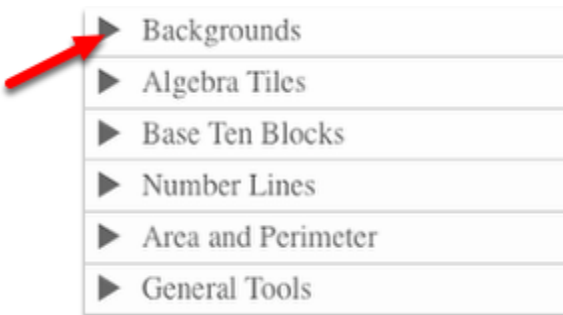


3. Choose from a variety of different mats. Also choose from a variety of sizes to fit on various devices.



4. Choose from a variety of different tiles:

- Click the arrow next to the tool to view/hide the options for each tool.



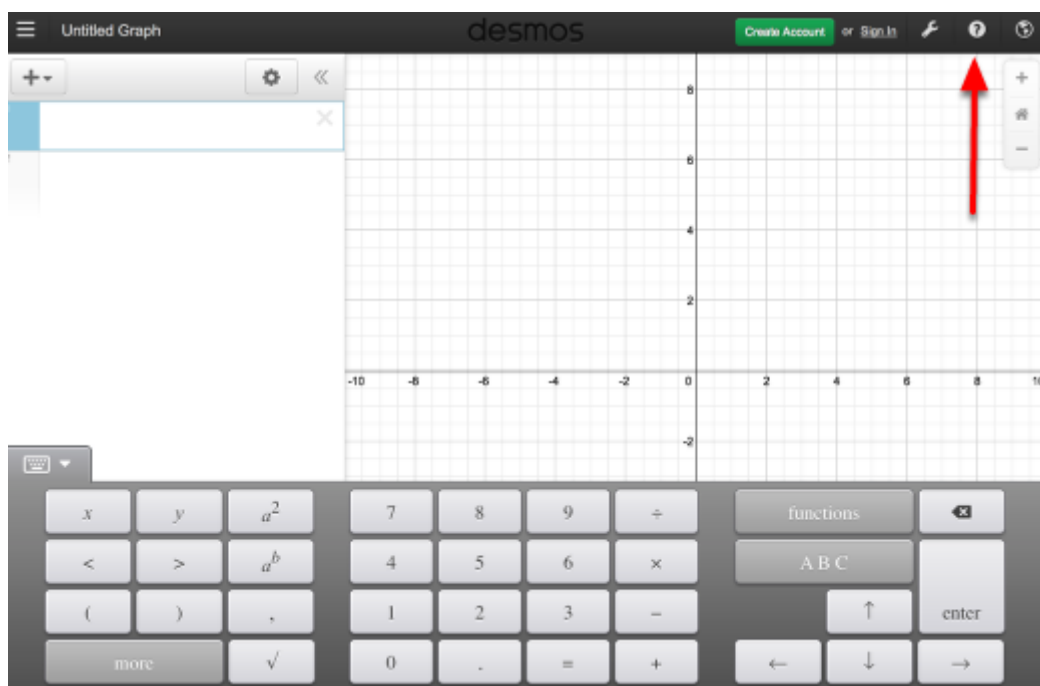
Desmos Graphing Calculator

This free graphing calculator allows students to create a free account to save all of their graphs, animations, and projects created.

Click on the "Desmos Graphing Calculator" link below.

[Desmos Graphing Calculator](#)

1. Click on all of the buttons. Try it out! For extra help, click the "?".



2. Click on the interactive tours below for help to create:

[Sliders](#)

[Tables](#)

[Advanced Tables](#)

[Restrictions](#)

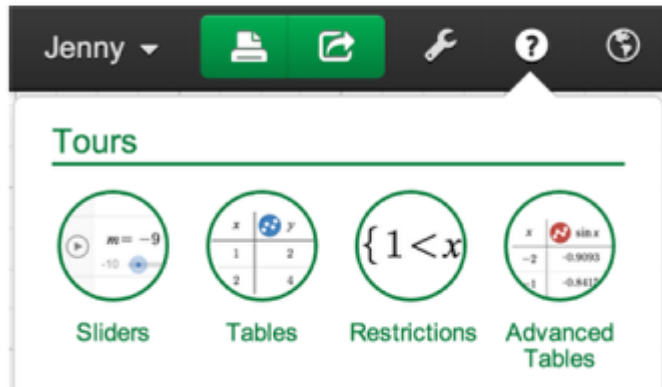
3. The interactive tours will NOT let you make a mistake! Try the links above!

Interactive Tours



Team Desmos
posted this on December 29, 2013 22:13

Try one (or all!) of the interactive tours to learn more about sliders, tables, restrictions, and more:



4. Need additional help? Watch these very short excellent videos!

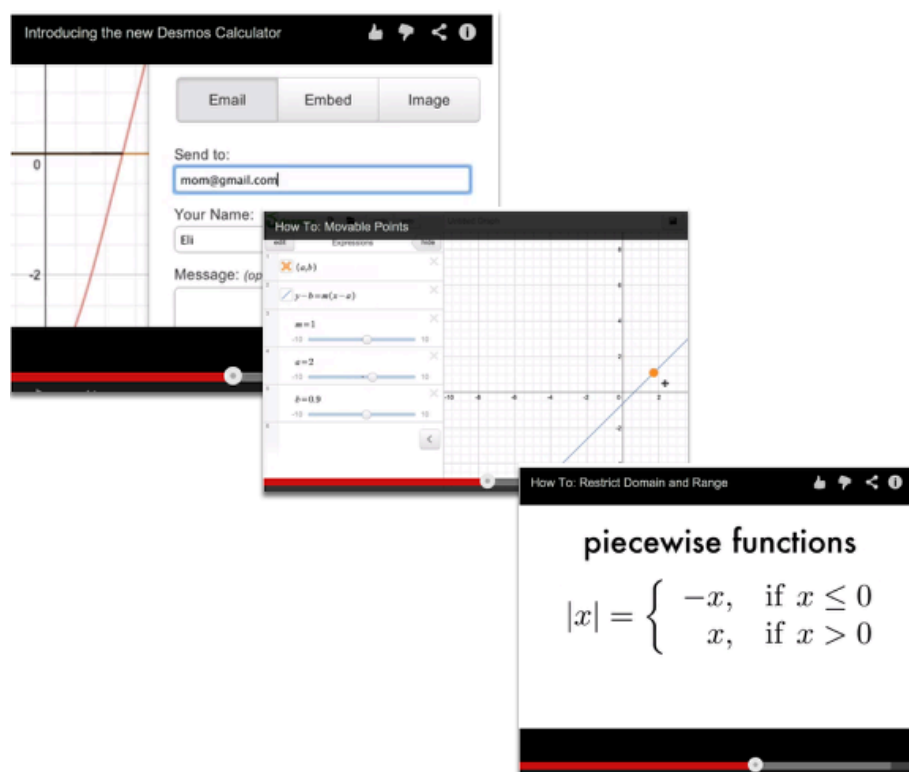
[Desmos Introduction](#)

[Moveable Points](#)

[Graph Inequalities](#)

[Piece-Wise Function](#)

5. The video links will help you with many of your graphing projects!



6. If you still need help, check out Desmos "Knowledge Base"


[Desmos Knowledge Base](#)



Chapter 1

PC 1.1.1: View Tube Data Collection Teacher Video

Click on the link below for the "View Tube Data Collection Video"

[View Tube Data Collection](#) 

1. Step 1: Find the field of view.



2. Step 2: Measure the distance from the wall.



3. Step 3: Measure the field of view for various distances from the wall.



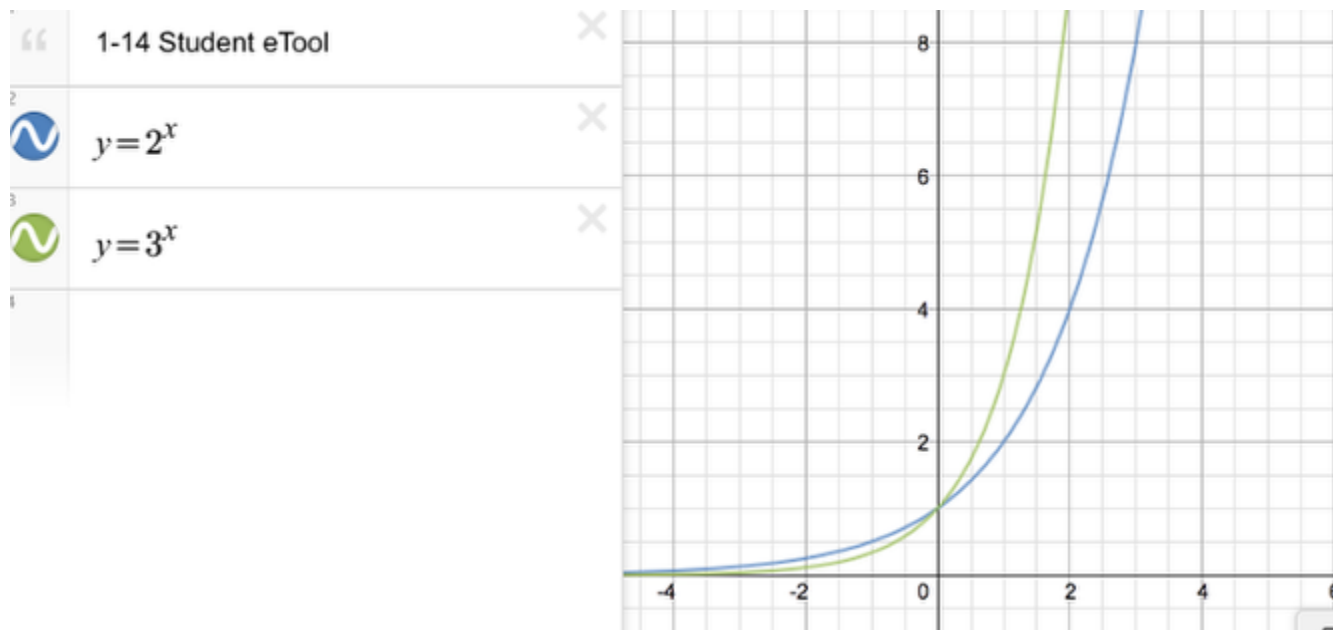
PCT 1.1.2: 1-14 & 1-20 Student eTool

Click on the link below for the "1-14 Student eTool"

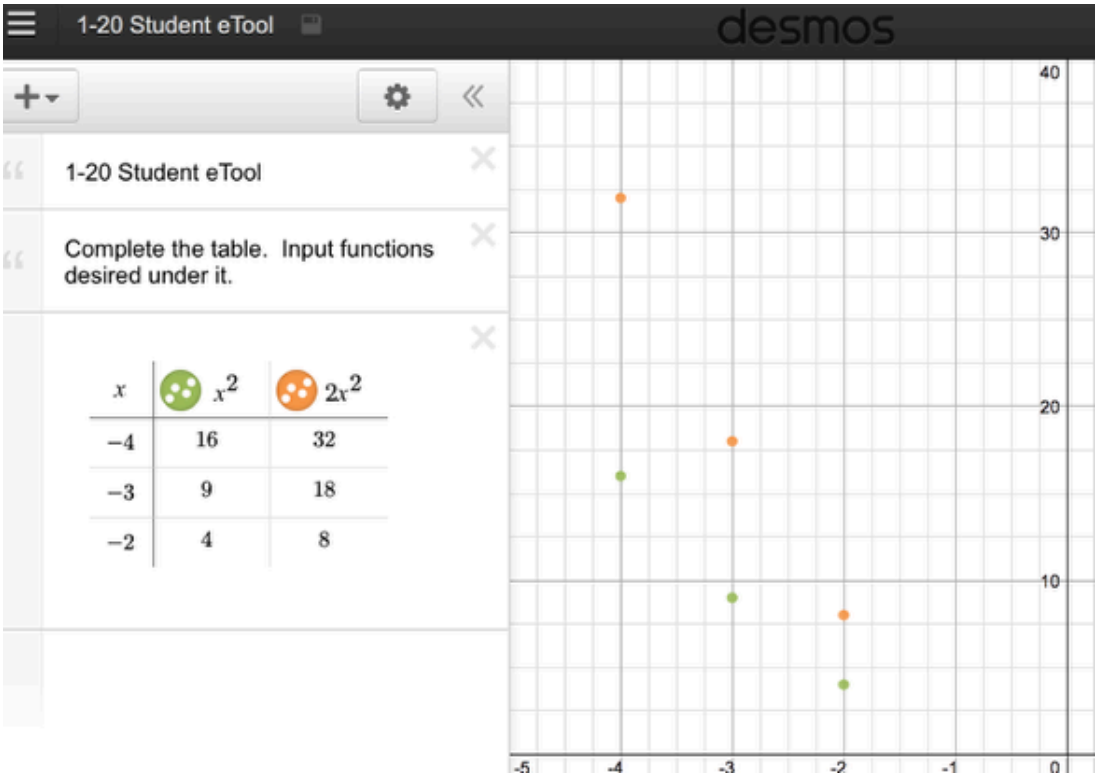
[PCT 1-14 Student eTool \(Desmos\)](#)

[PCT 1-20 Student eTool \(Desmos\)](#)

1. PCT 1-14 Student eTool:



2. PCT 1-20 Student eTool:



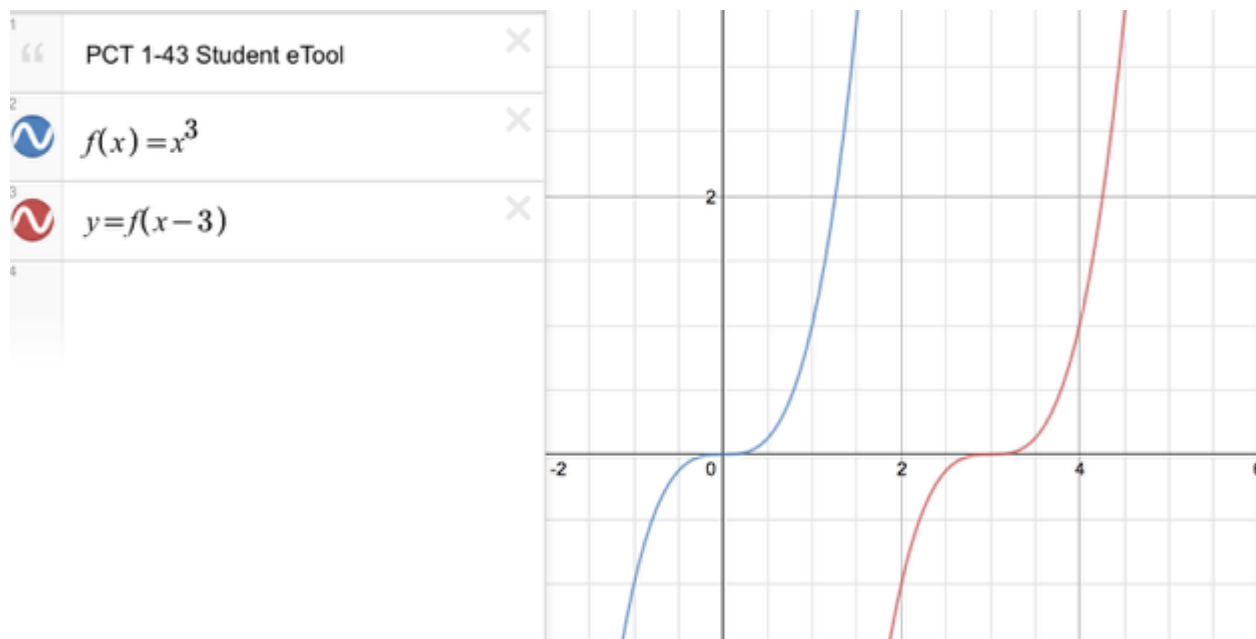
PCT 1.1.4: 1-43 & 1-44 Student eTool

Click on the link below for the "1-43 Student eTool"

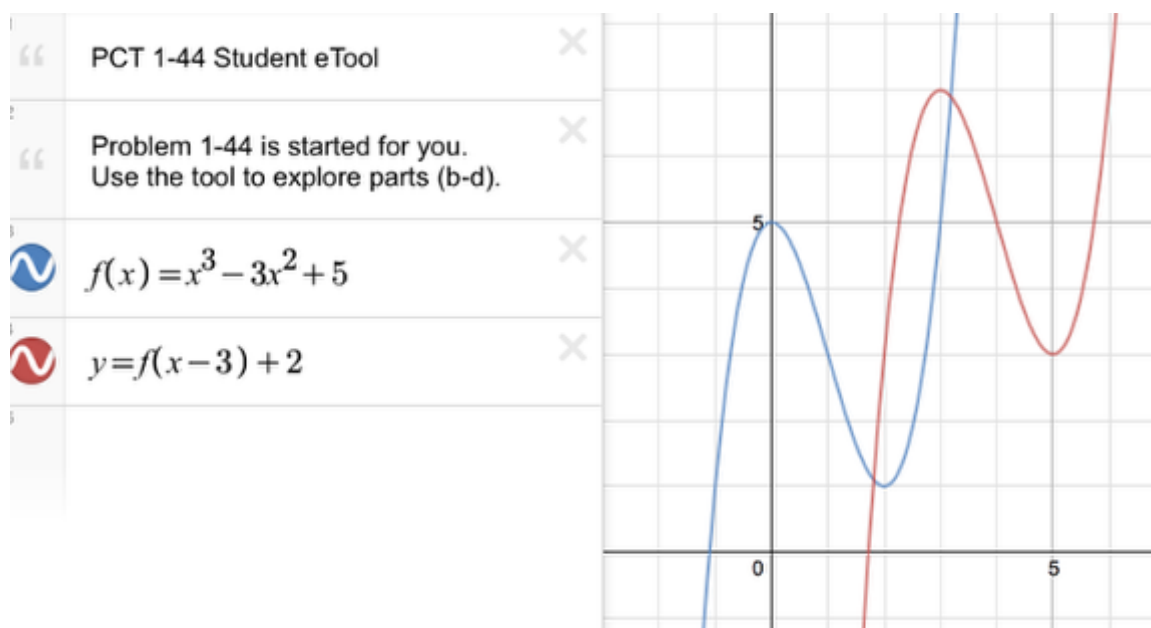
[PCT 1-43 Student eTool \(Desmos\)](#)

[PCT 1-44 Student eTool \(Desmos\)](#)

1. PCT 1-43 Student eTool:



2. PCT 1-44 Student eTool:

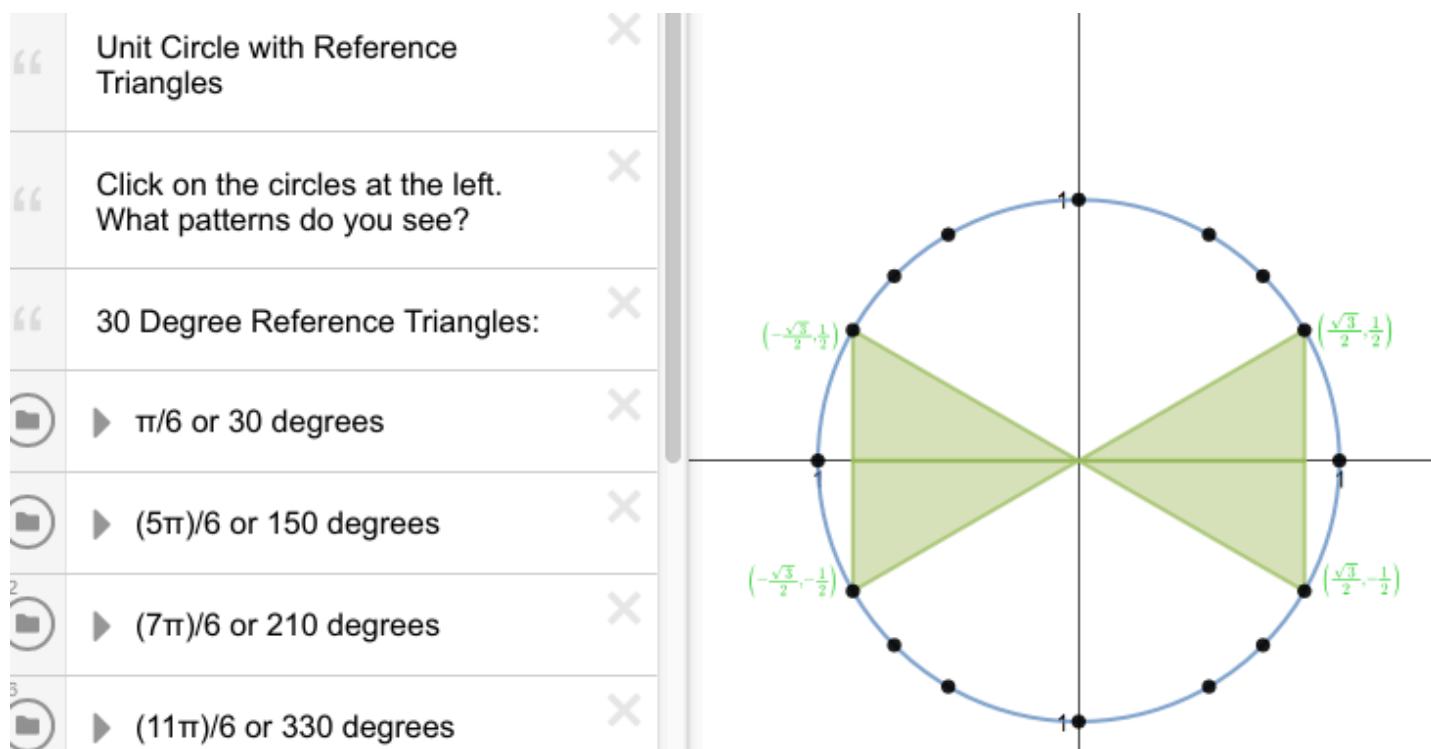


PCT 1.4.2: Unit Circle with Reference Triangles

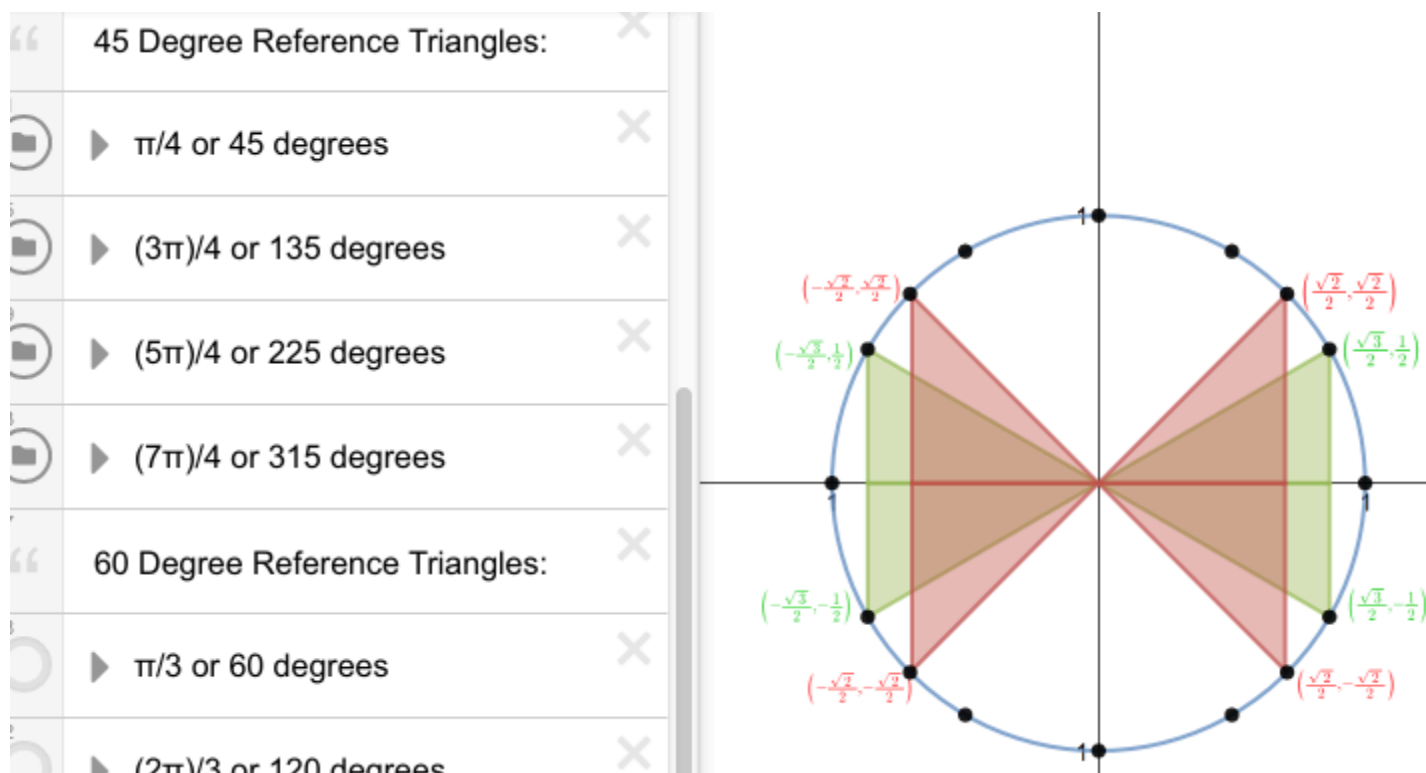
Click on the link below for the "Unit Circle with Reference Triangles"

[Unit Circle Demonstration eTool \(Desmos\)](#)

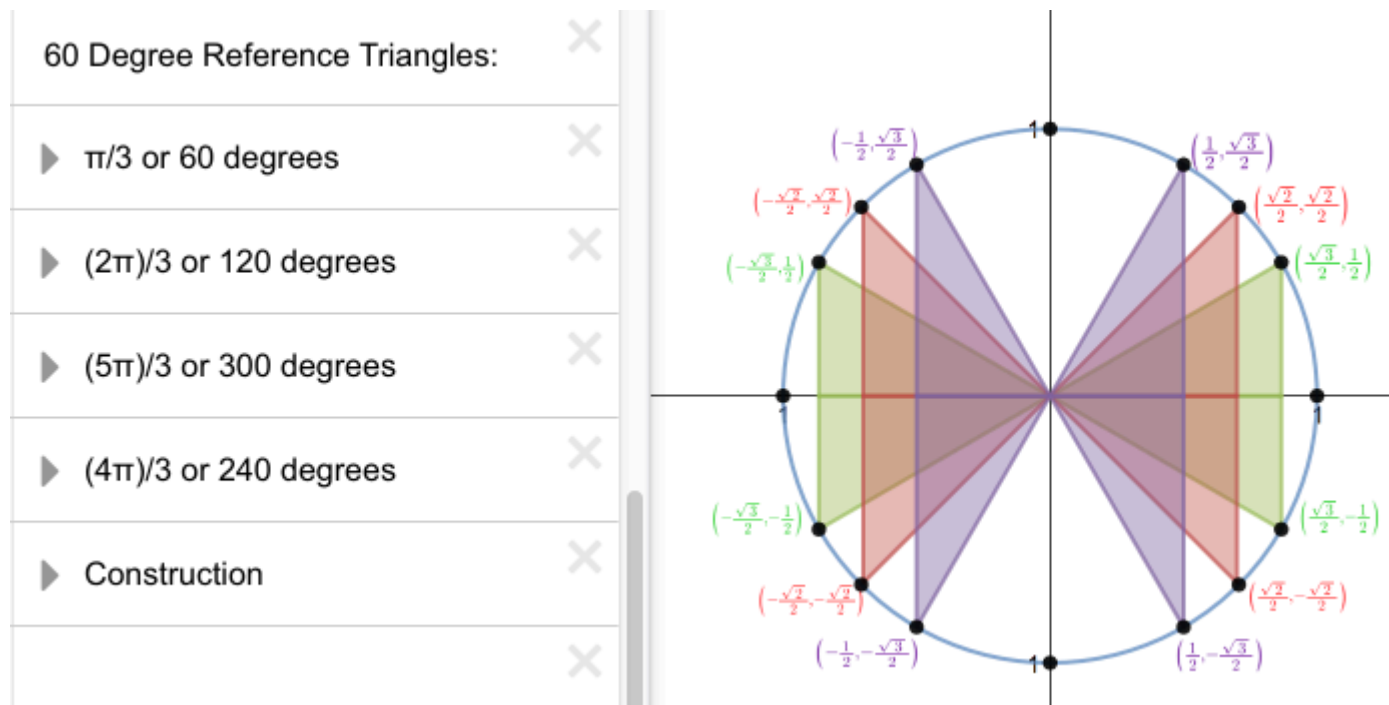
1. Click the circle in front the the radian or degrees for the reference triangle.



2. Displayed are both the 30 degree and the 45 degree reference triangles.





3. You can display one, several, or all of the reference triangles.



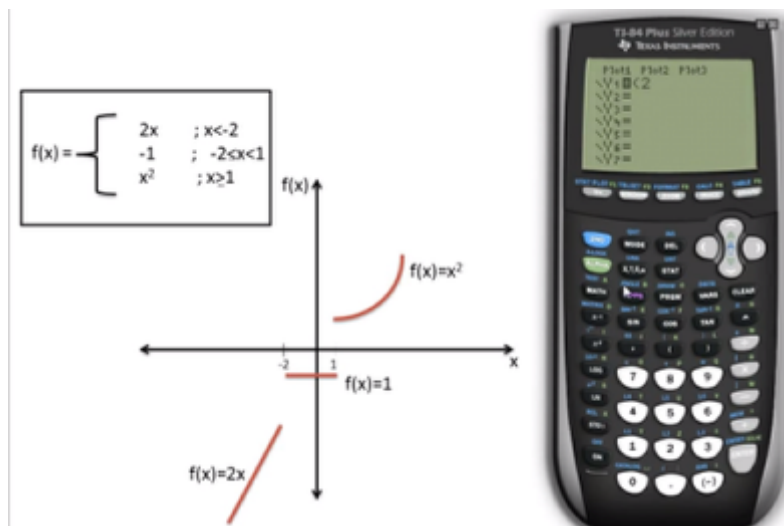
Chapter 2

Piecewise Functions for TI-84 and Desmos Videos

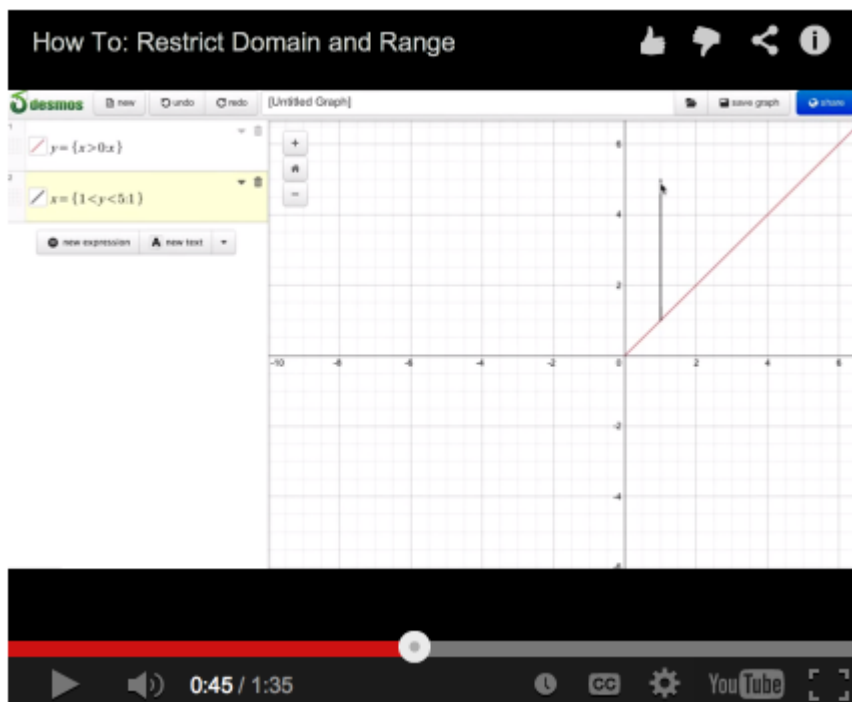
Click on the link below for the "Piecewise Functions for TI-84 and Desmos Videos"

[Piecewise Functions for TI-84 Video](#) 
[Piecewise Functions for Desmos Video](#) 

1. Mike Gaffney You Tube Video:



2. Desmos video:



PC 2.1.1: 2-2 Student eTool

Click on the link below for the "2-2 Student eTool".

[2-2 Student eTool \(Desmos\)](#)

1. PC 2-2 Student eTool:

2-2 Student eTool

Fill in the values in the table below. Then write the piecewise function below the table. Check your graph for accuracy!

Let x equal the number of hours after 7:00 pm. Let y equal the amount earned.

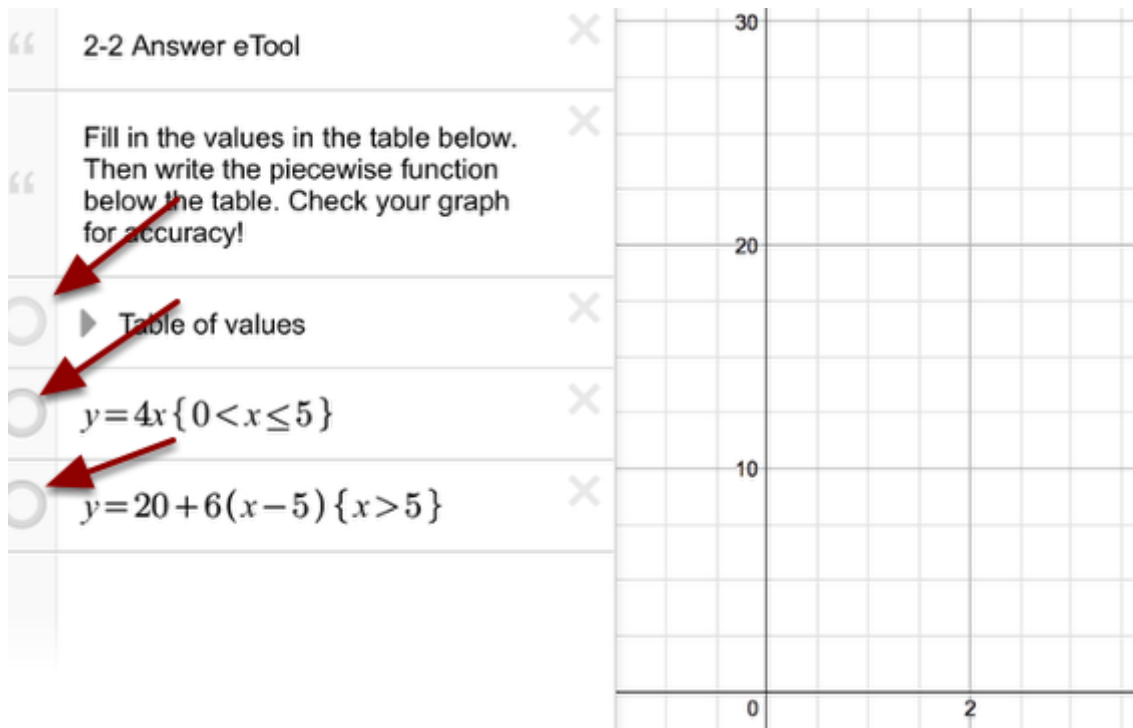
x	y
.....	4
2
3

PC 2.1.1: 2-2 Answer eTool

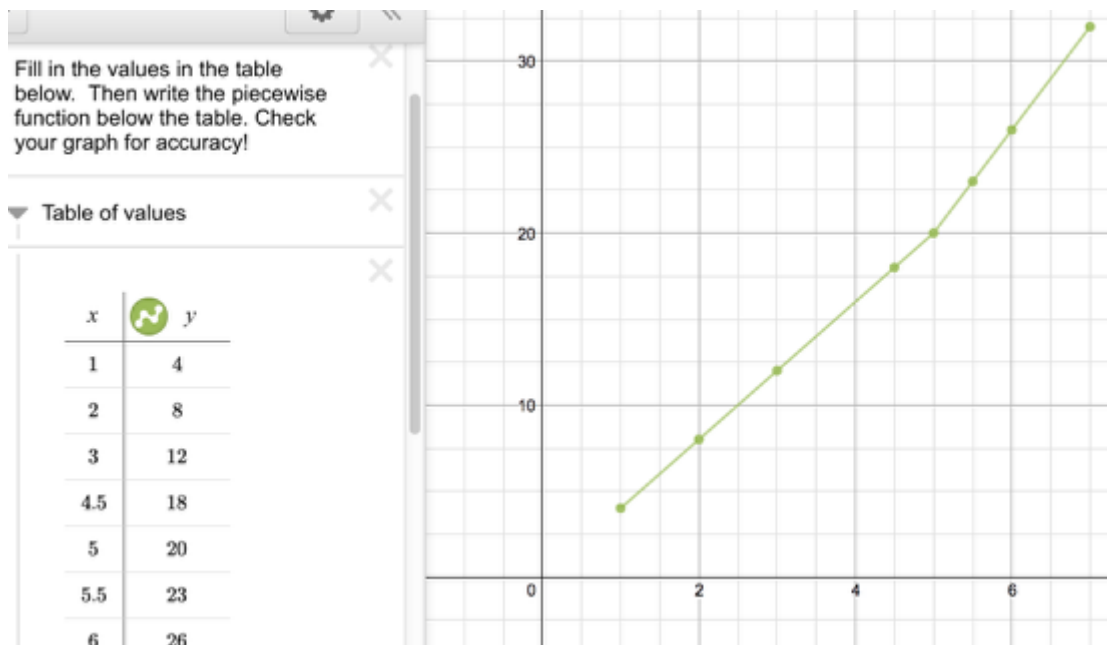
Click on the link below.

[2-2 Answer eTool \(Desmos\)](#)

2-2 Answer eTool: Click the circles at left.



PC 2-2 Answer eTool: Answer



PC 2.2.2: Sigma eTool

Click on the link below for the "Sigma eTool".

[Sigma eTool \(Desmos\)](#)

1. Modify the eTool by:

- Typing in your functions
- Moving the sliders to adjust the upper and lower indices.

The screenshot shows the Sigma eTool interface with several numbered annotations:

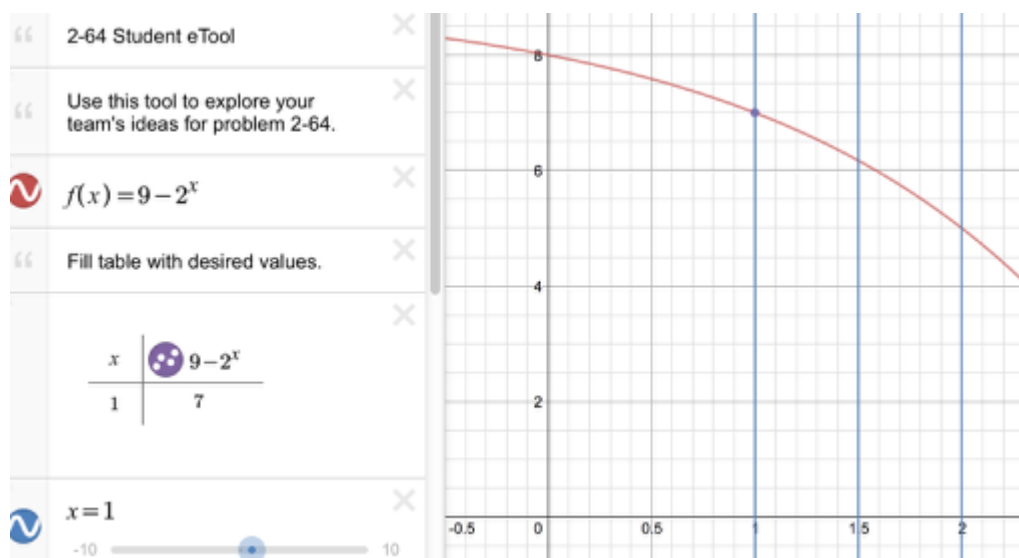
- 1**: Points to the instruction text: "Type your own expression over the argument. Change the index by moving the sliders. Click on the end numbers of the sliders to modify the beginning the end numbers."
- 2**: Points to the summation symbol \sum in the expression $\sum_{n=a}^b n^2$.
- 3**: Points to the "Answer" button, which displays the result $= 77$.
- 4**: Points to the slider for the lower index a , which is currently set to 4.
- 5**: Points to the slider for the upper index b , which is currently set to 6.
- 6**: Points to the slider for the lower index a , which is currently set to 4.

PC 2.3.1: 2-64 Student eTool

Click on the link below for the "2-64 Student eTool".

[2-64 Student eTool \(Desmos\)](#)

1. 2-64 Student eTool

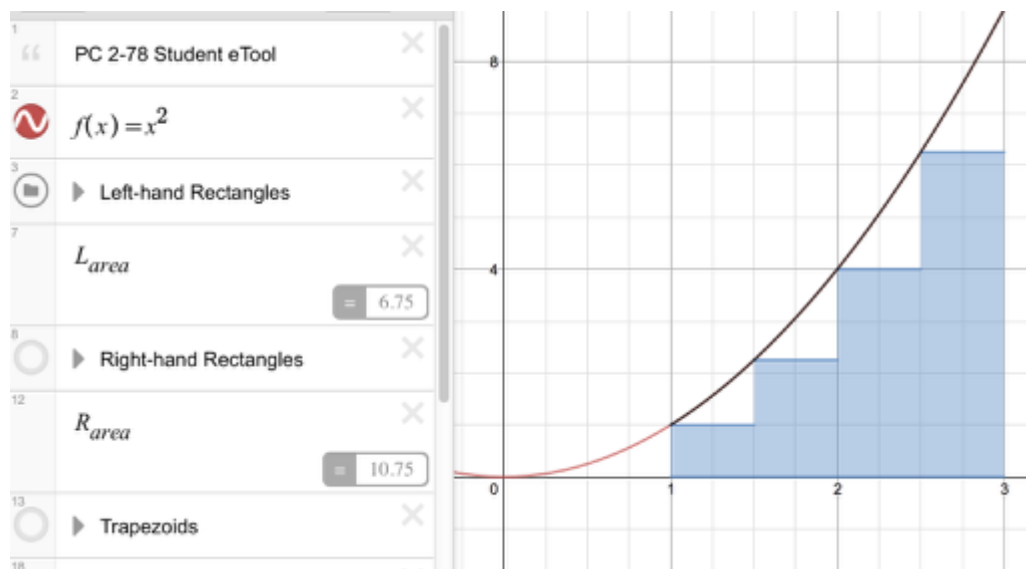


PC 2.3.2: 2-78 Student eTool

Click on the link below for the "2-78 Student eTool".

[2-78 Student eTool \(Desmos\)](#)

1. PC 2-78 Student eTool

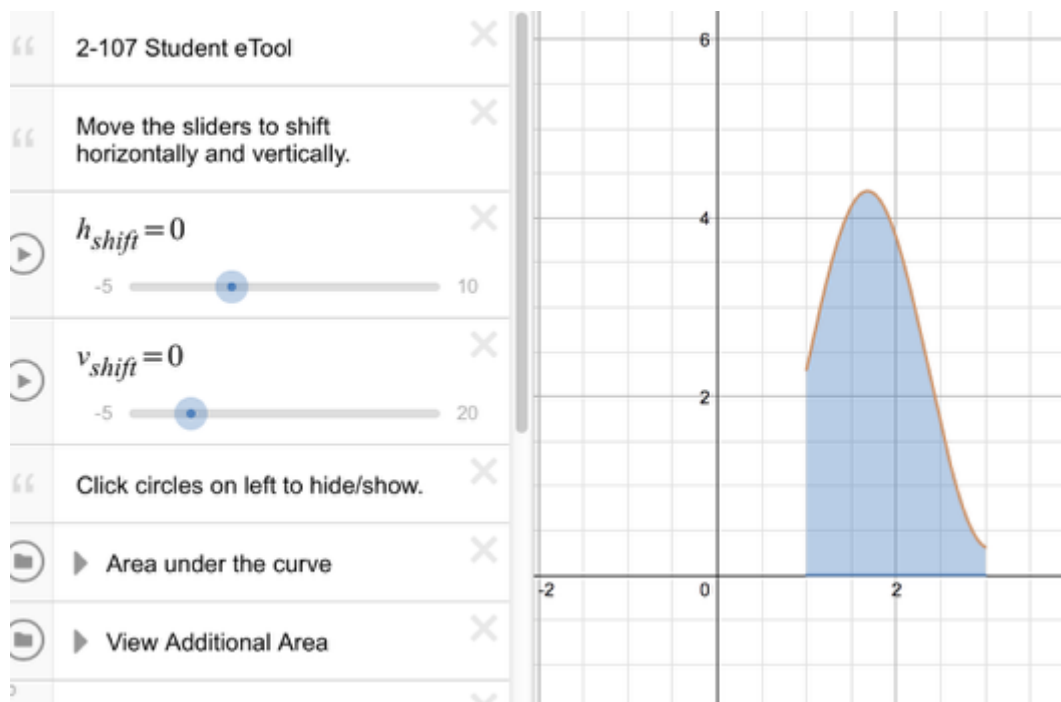


PC 2.3.4: 2-107 Student eTool

Click on the link below.

[2-107 Student eTool \(Desmos\)](#)

PC 2-107 Student eTool:



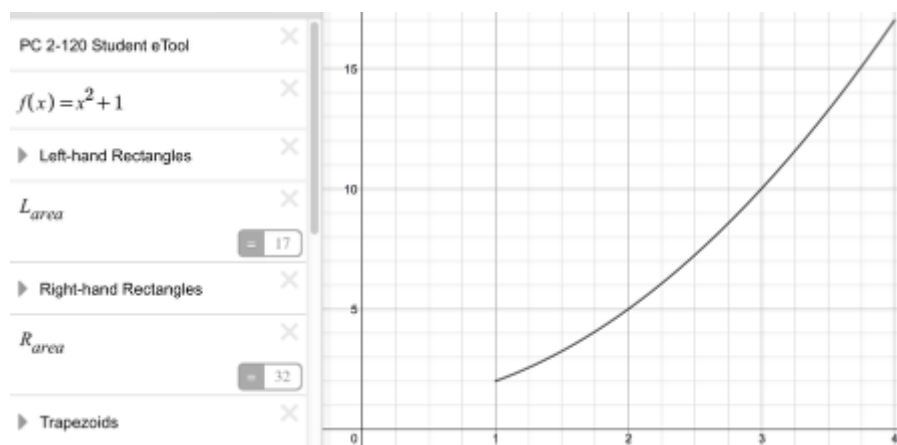
PC 2.3.5: 2-120 Student eTool

Click on the link below for the "2-120 Student eTool".

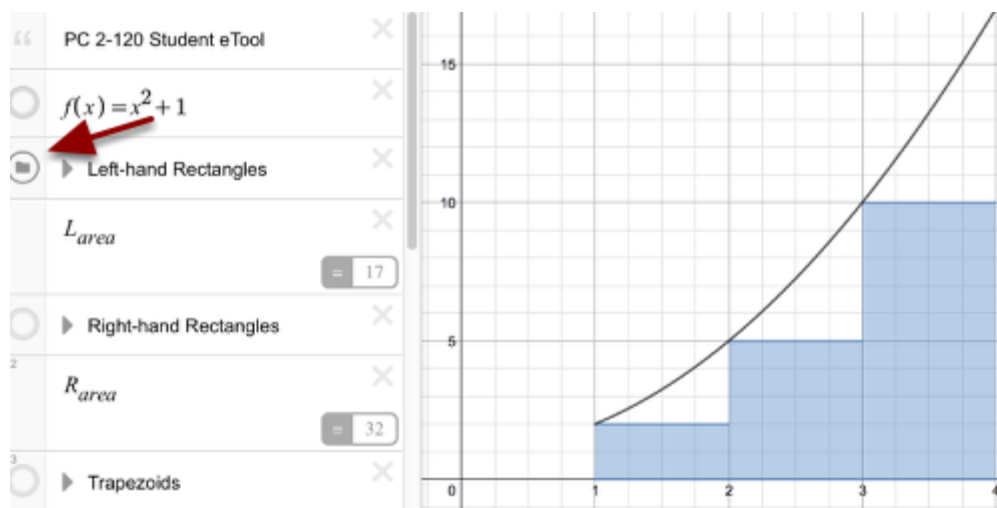
[2-120 Student eTool \(Desmos\)](#)

1. Select among:

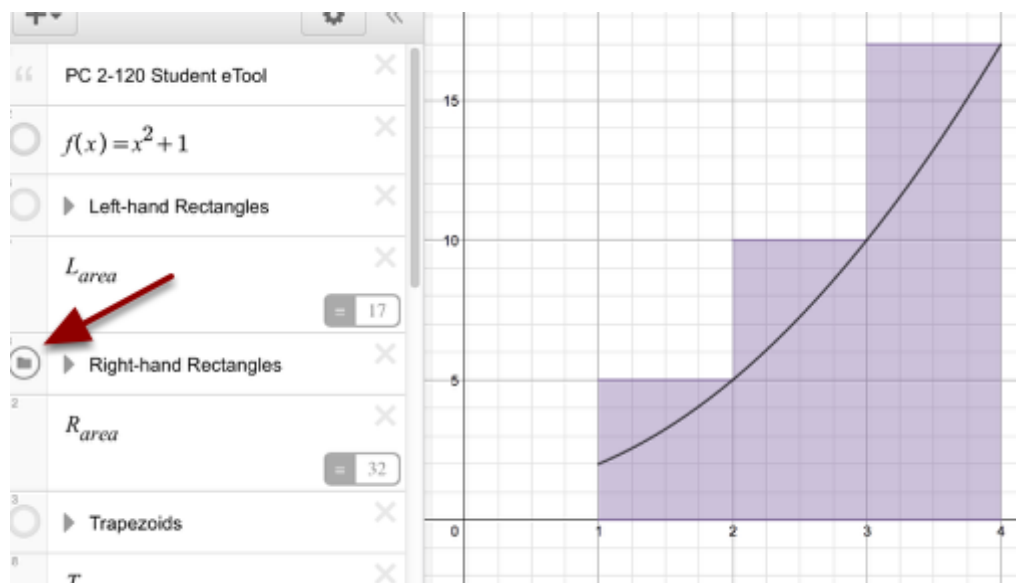
- Left-hand Rectangles
- Right-hand Rectangles
- Trapezoids



2. Left-hand Rectangles:



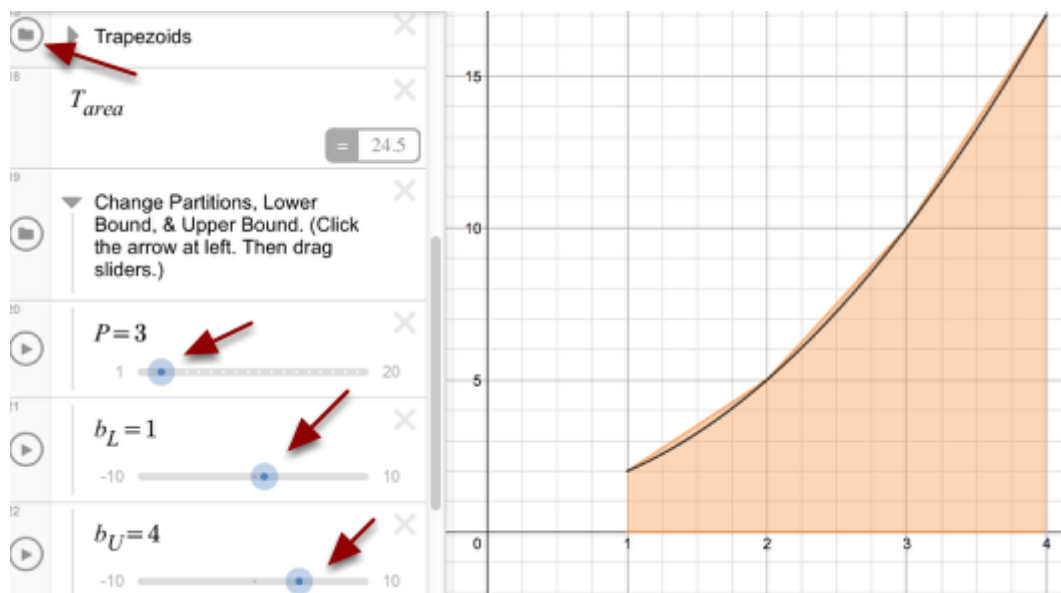
3. Right-hand Rectangles:



4. Trapezoids:

Also:

- Select number of partitions
- Change Lower Bound
- Change Upper Bound

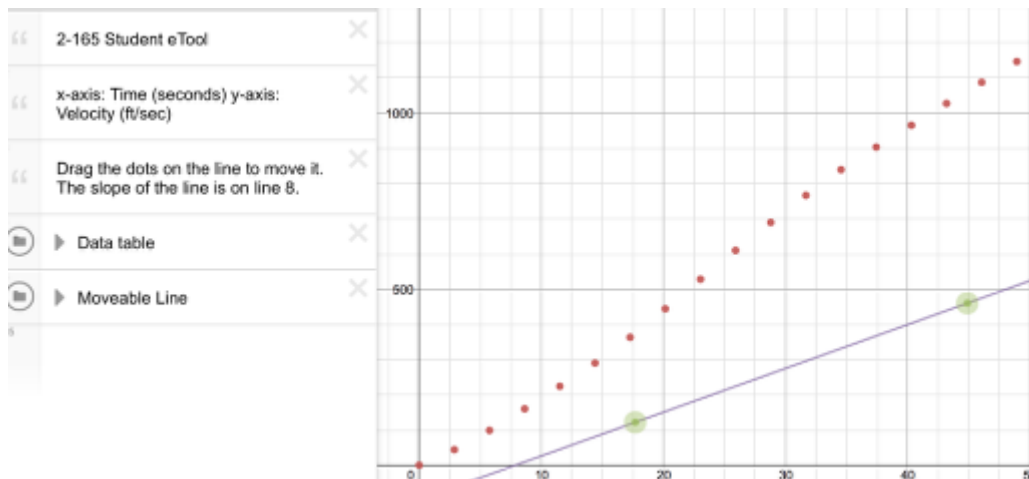


PC 2.3.8: 2-165 Student eTool

Click on the link below for the "2-165 Student eTool".

[2-165 Student eTool \(Desmos\)](#)

1. 2-165 Student eTool



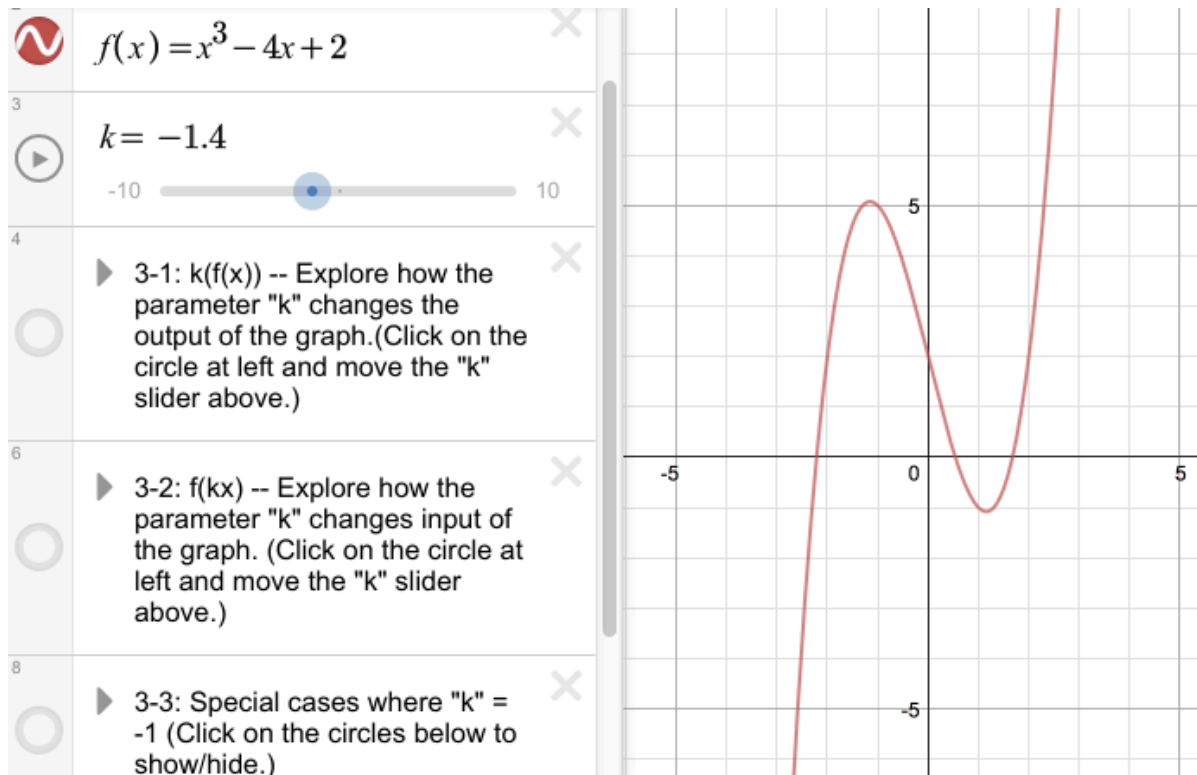
Chapter 3

PCT 3.1.1: 3-1 & 3-2 & 3-3 Student eTools

Click on the link below.

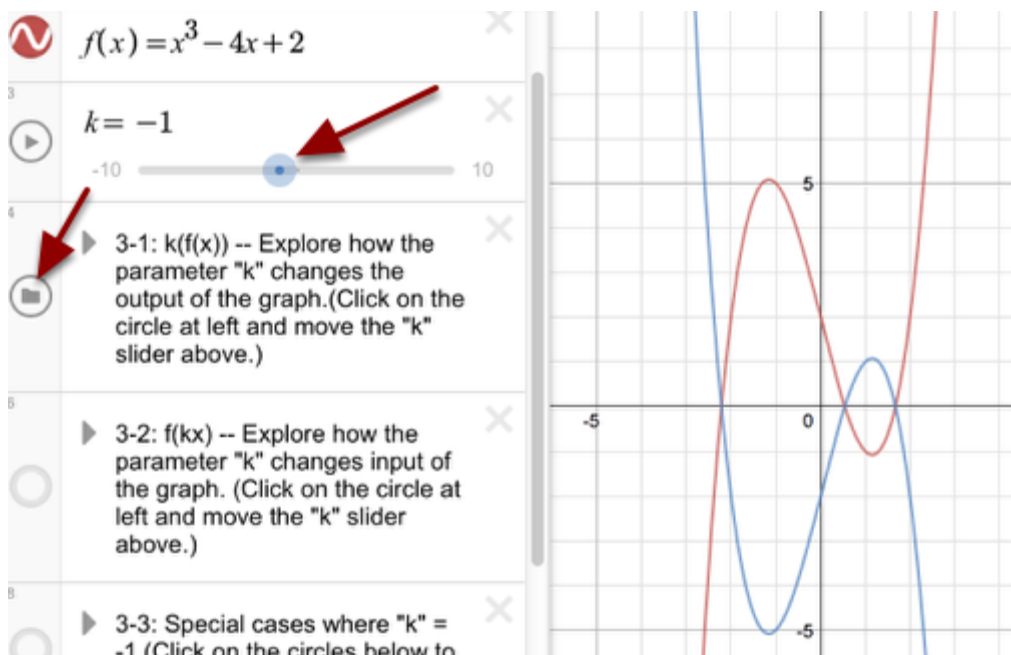
[PCT 3-1 & 3-2 & 3-3 Student eTool \(Desmos\)](#)

1. PCT 3-1 & 3-2 & 3-3 Student eTools:

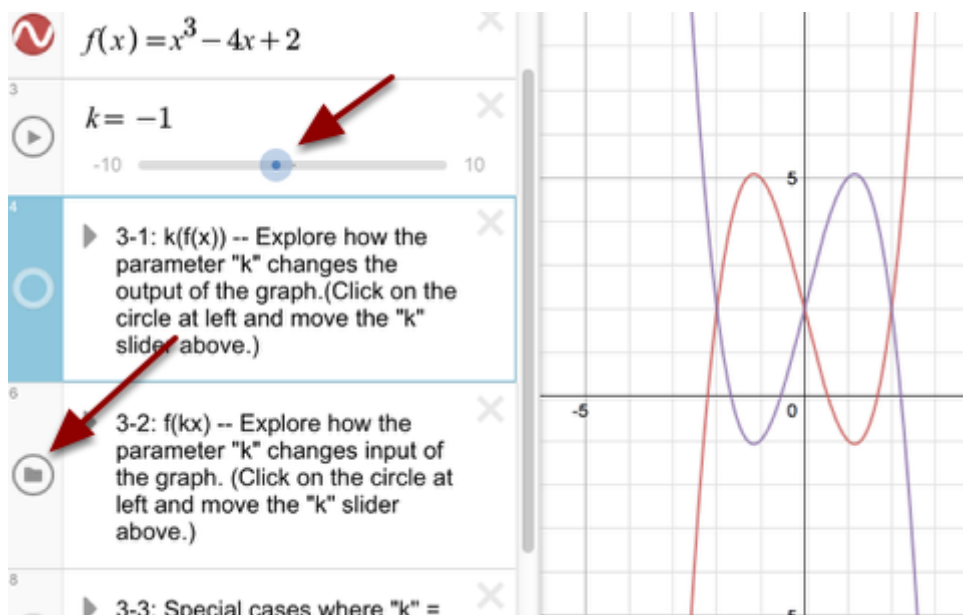


2. 3-1: The various parts are indicated below.

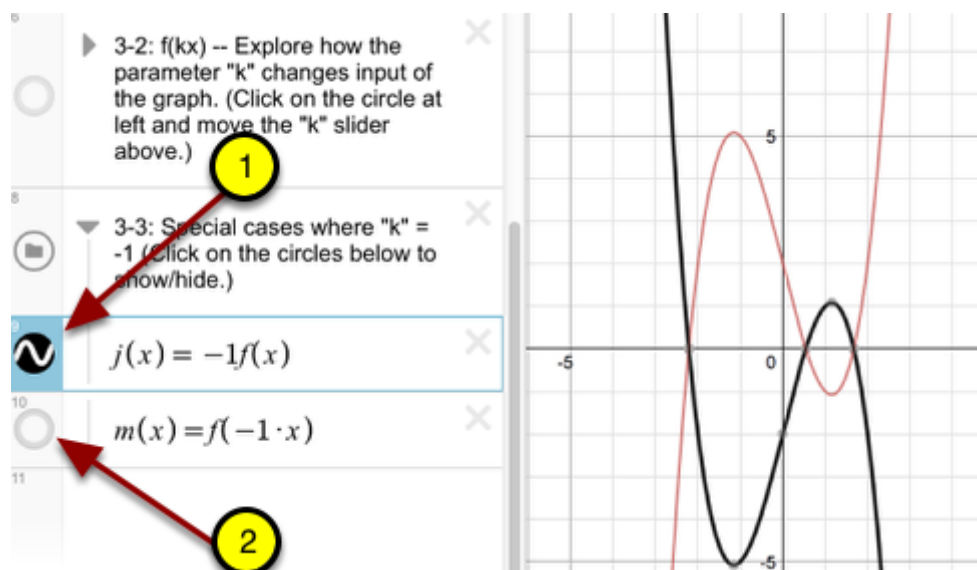
- Move the slider for various values of "k".
- Show/Hide the various parts by clicking the circle in front of each part.



3. 3-2:



4. 3-3 has two functions associated with it.



PCT 3.2.2: 3-67 Silent Board Game Teacher eTool

Click on the link below.

[PCT 3-67 Silent Board Game \(CPM\)](#)

Silent Board Game

- For the rule, type in the base.
- What is the relationship between x and y ?
- Type in a number for y . Enter. The program will tell the student if he is correct.

Silent Board Game
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x	y	correct?
0	<input type="text"/>	
25	<input type="text"/>	
1/625	<input type="text"/>	
-2	<input type="text"/>	
1/5	<input type="text"/>	
5	<input type="text" value="1"/>	<input type="text" value="yes"/>
1/125	<input type="text" value="-3"/>	<input type="text" value="yes"/>
625	<input type="text"/>	
125	<input type="text"/>	
1/25	<input type="text"/>	
0.45	<input type="text" value="-0.496"/>	<input type="text" value="yes"/>

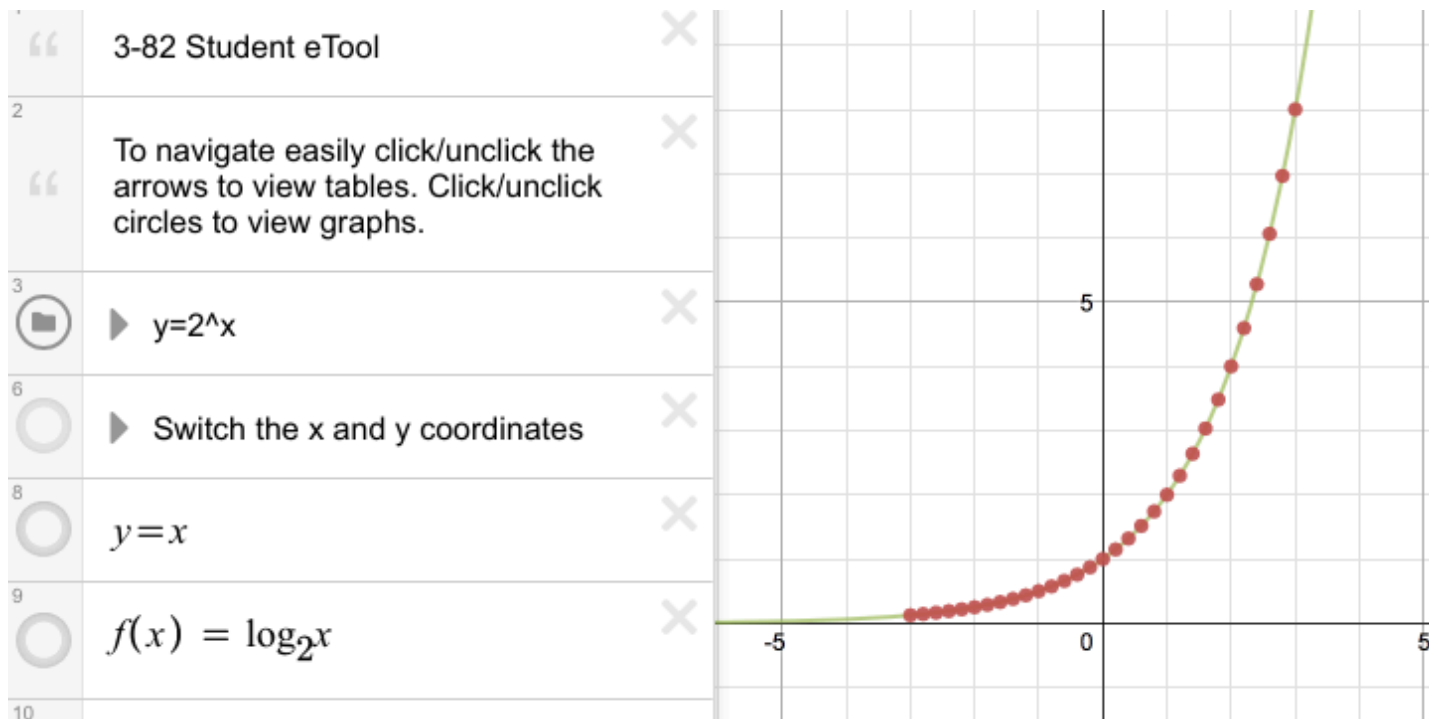
Guess the rule: $y = \log$ (x)

PCT 3.2.3: 3-82 Student eTool

Click on the link below.

[3-82 Student eTool \(Desmos\)](#)


PCT 3-82 Student eTool:



Switch the x and y coordinates:

- Click the arrows to view the tables.
- Switch the x and y coordinates by typing in the new y-values.

	2.2	4.5947934
	2.4	5.2780316
	2.6	6.0628663
	2.8	6.9644045
	3	8

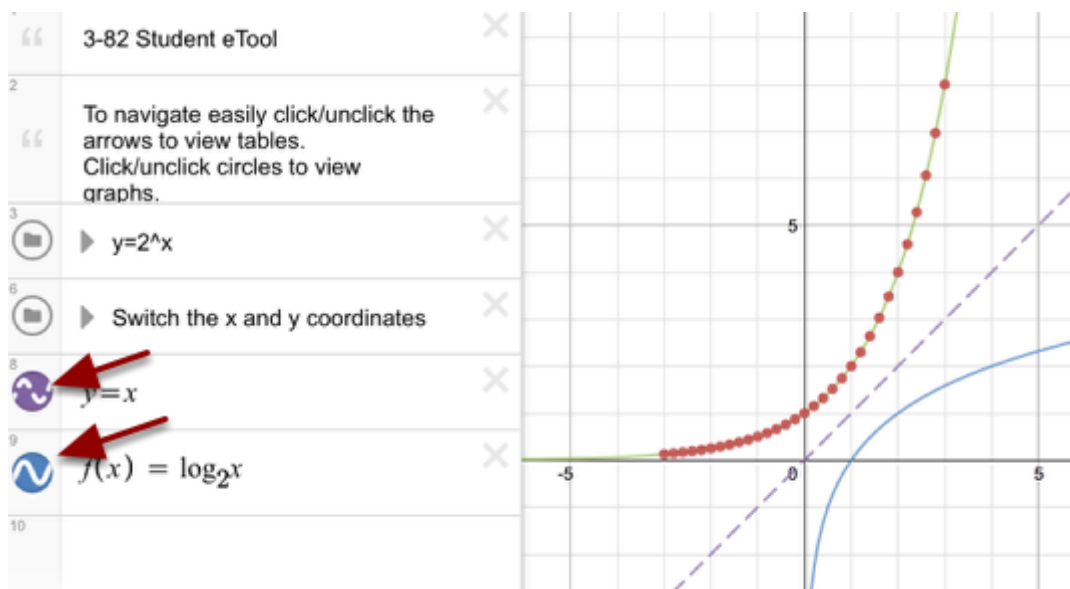
6  Switch the x and y coordinates

7

x	
0.125	
0.1436	
0.1649	

Also view:

- $y = x$ graph
- Logarithmic graph
- (Click the circles in front of each.)

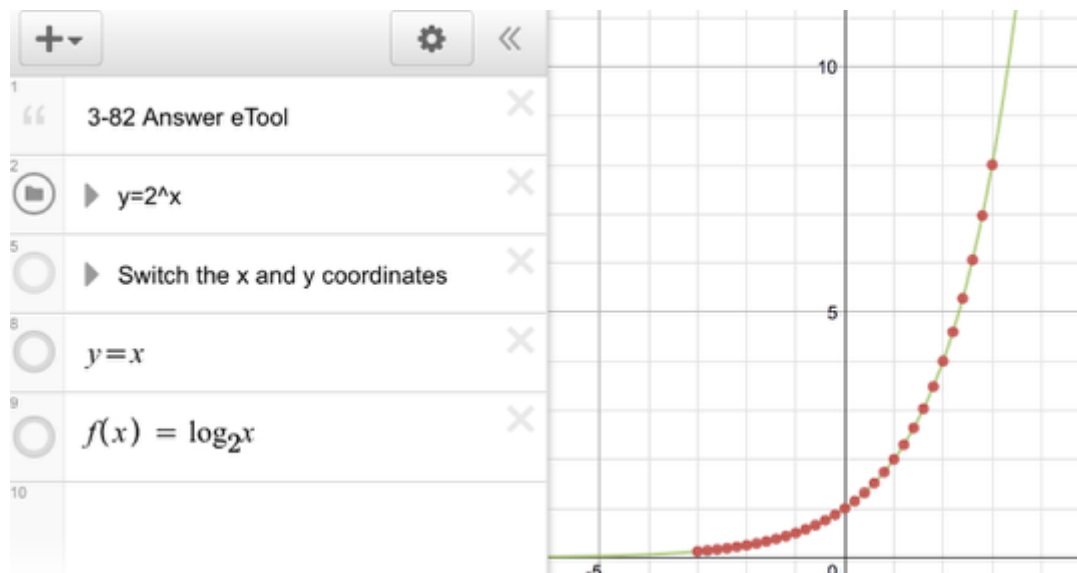


PCT 3.2.3: 3-82 Answer eTool

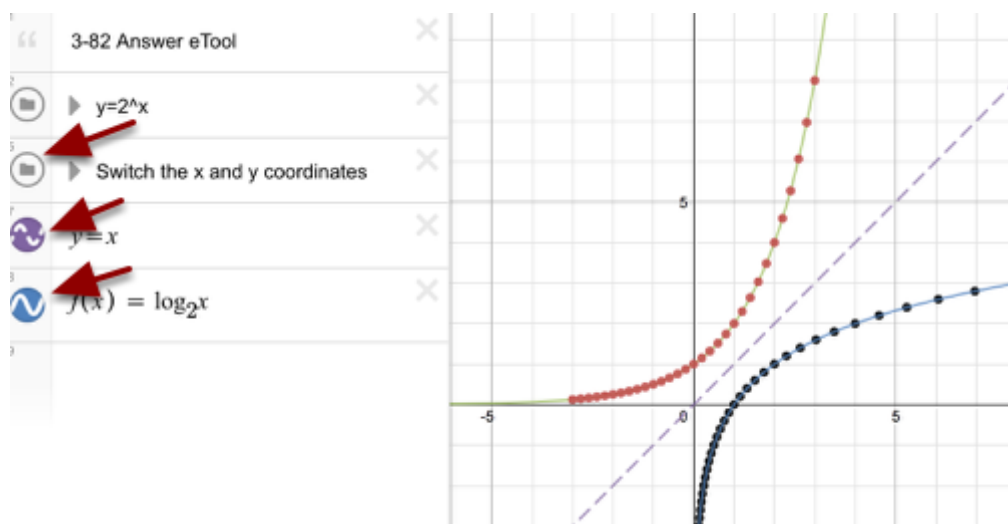
Click on the link below.

[3-82 Answer eTool \(Desmos\)](#)

1. PCT 3-82 Answer eTool:

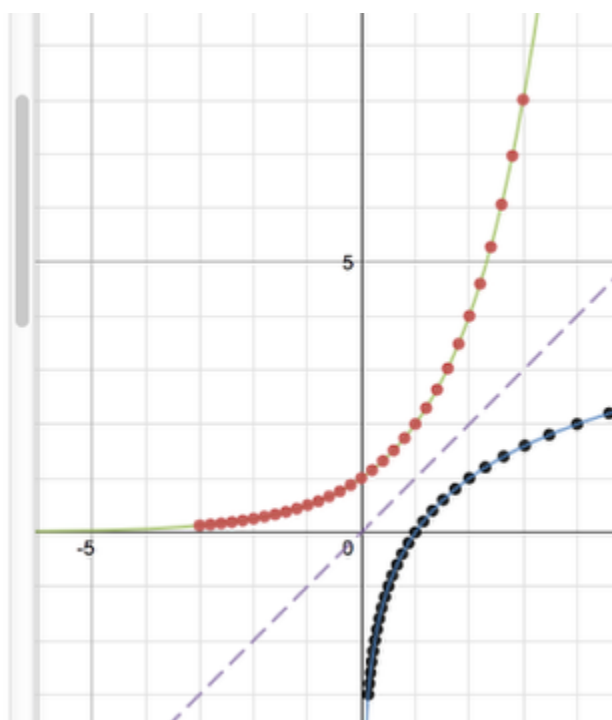


2. Click on the circles at left.



3. Add the points by reversing the x- and y-values.

x	$\log_2(x)$
0.125	-3
0.1436	-2.7998723
0.1649	-2.6003367
0.1895	-2.3997302
0.2176	-2.2002495
0.25	-2
0.2872	-1.7998723
0.3299	-1.5998993
0.3789	-1.400111
0.4353	-1.1999181
0.5	-1





Chapter 4

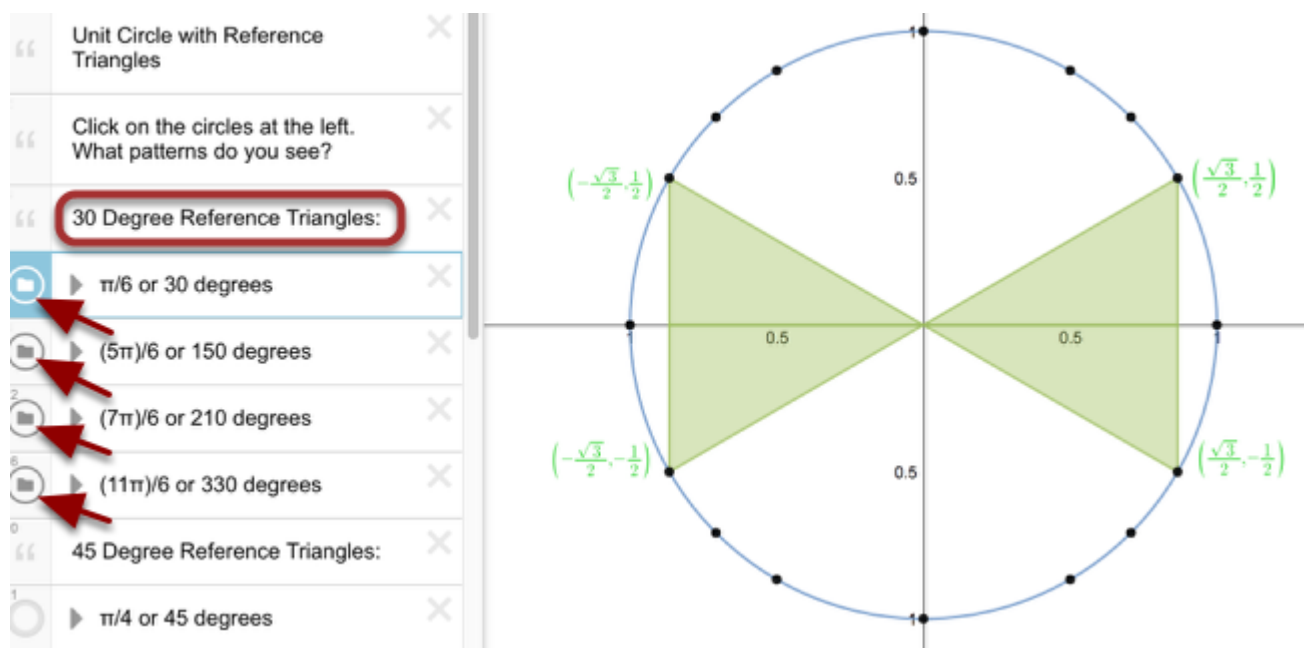
PCT 4.1.1: Unit Circle with Reference Angles Teacher Demo (Desmos)

Click the link below.

[Unit Circle with Reference Angles](#) (Desmos)

1. 30 Degree Reference Triangles:

- Find the radian or degree measurements at the left.
- Find the points on the graph.
- Click the folder icon at the left for the desired measurement.



2. 45 Degree Reference Triangles:

- Find the radian or degree measurements at the left.
- Find the points on the graph.
- Click the folder icon at the left for the desired measurement.

45 Degree Reference Triangles:

21 ☒ $\pi/4$ or 45 degrees

25 ☐ $(3\pi)/4$ or 135 degrees

29 ☐ $(5\pi)/4$ or 225 degrees

33 ☐ $(7\pi)/4$ or 315 degrees

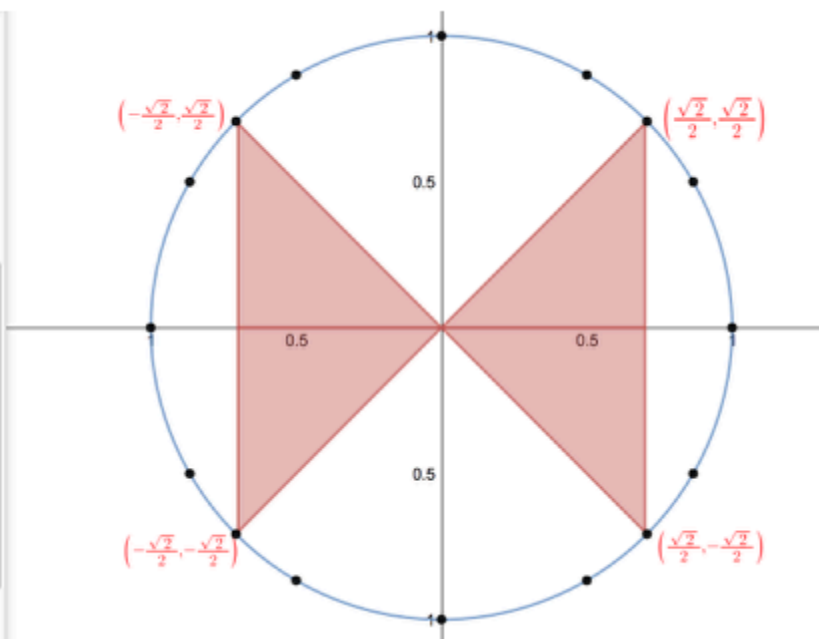
37 60 Degree Reference Triangles:

38 ☐ $\pi/3$ or 60 degrees

42 ☐ $(2\pi)/3$ or 120 degrees

46 ☐ $(5\pi)/3$ or 300 degrees

50 ☐ $(4\pi)/3$ or 240 degrees



3. 60 Degree Reference Triangles:

- Find the radian or degree measurements at the left.
- Find the points on the graph.
- Click the folder icon at the left for the desired measurement.

45 Degree Reference Triangles:

21 ☐ $\pi/4$ or 45 degrees

25 ☐ $(3\pi)/4$ or 135 degrees

29 ☐ $(5\pi)/4$ or 225 degrees

33 ☐ $(7\pi)/4$ or 315 degrees

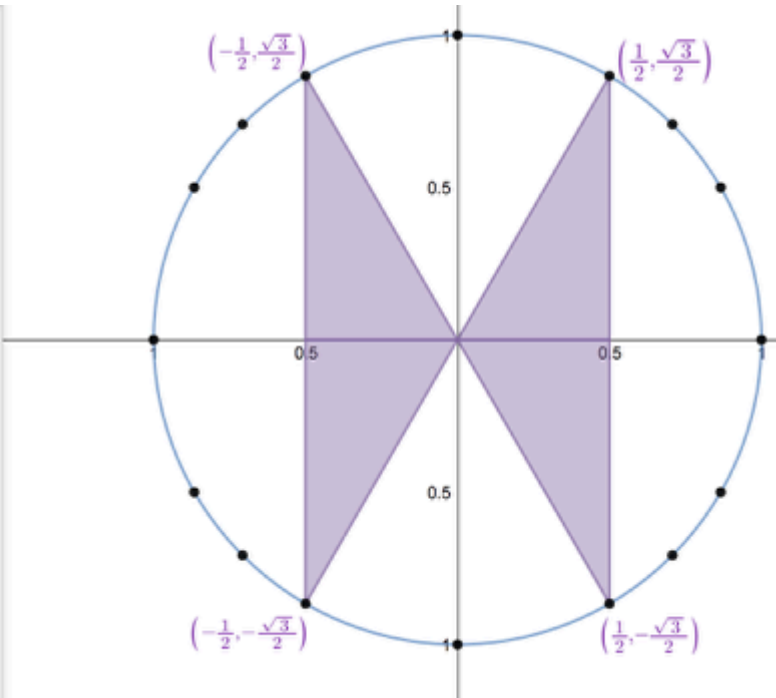
37 60 Degree Reference Triangles:

38 ☒ $\pi/3$ or 60 degrees

42 ☐ $(2\pi)/3$ or 120 degrees

46 ☐ $(5\pi)/3$ or 300 degrees

50 ☒ $(4\pi)/3$ or 240 degrees



PCT 4.1.3: Sine and Cosine Curves with Unit Circle (Desmos)

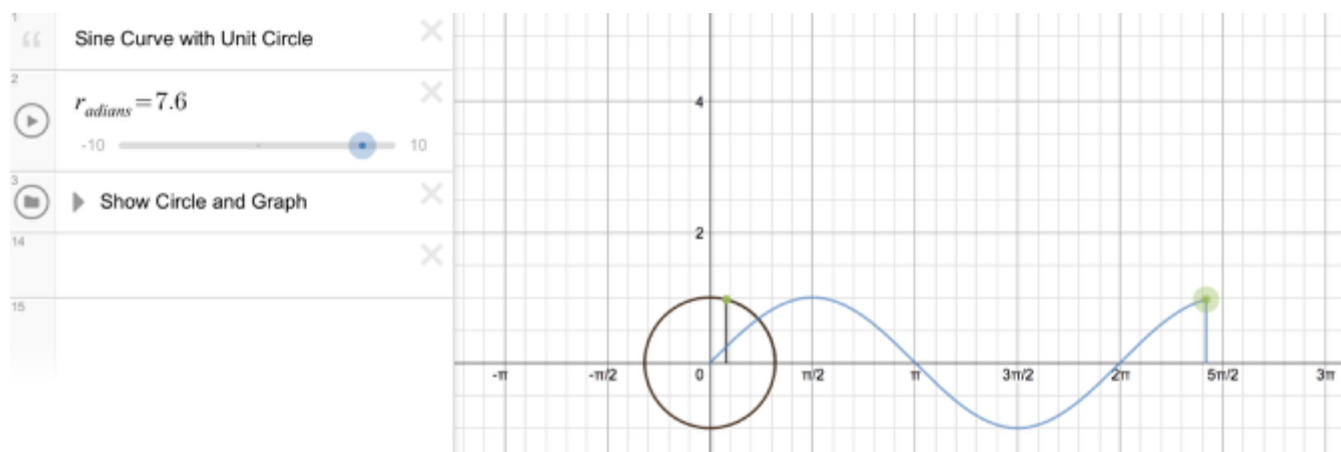
Click on the links below.

[Sine Curve with Unit Circle](#) (Desmos)

[Cosine Curve with Unit Circle](#) (Desmos)

1. Sine Curve with Unit Circle:

- Move the Radian slider to show the graph.



2. Cosine Curve with Unit Circle:

- Move the Radian slider to show the graph.

