

Blue Ribbon Data Analysis and Probability
“Getting Started on the TI-83 plus Graphing Calculator”
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In August 2002 I presented a six-hour inservice program for the Harrison County secondary mathematics and science teachers on “Getting Started on the TI-83 plus Graphing Calculator”. My presentation included demonstrations, examples, and activities for using the various keys, functions, and commands featured on the TI-83 plus graphing calculator. We examined all of the graphing, editing, advanced functions, and scientific calculator keys on the TI-83 plus graphing calculator.



(This graph was created in 2000 on a TI-83 plus graphing calculator by Michael Malutich, a Clarksburg Liberty High School sophomore.)

ALGEBRA ACTIVITY: COORDINATE GRAPHING

Many teachers give beginning Algebra students sets of ordered pairs to plot and connect to form pictures. In this activity the student is given graph paper and asked to create his own “connect the dots” picture like the one above or the Christmas tree on the next page. Then the student will label the coordinates for each point on his graphed picture. The students can then enter their sets of coordinates into their calculator and graph them as a connected scatter plot (use the xyline graph).

Materials Needed: Graph Paper

TI-83 plus Graphing Calculator

Connect the dots coloring books (for students who are not comfortable drawing their own pictures)

Directions: Draw a picture on your graph paper that you can easily retrace by connecting “dots”.

Label and list each point in order as you connect them.

Enter (in order) the x-coordinates into L1.

Enter the corresponding y-coordinates into L2.

Go to STAT PLOT and make a connected scatter plot (the xyline graph of L1 and L2).

After you set an appropriate WINDOW, you may wish to use ZOOM #5 to “square” your screen.

Graph Link your calculator to the computer and print a copy of your graphed picture.

Turn in your sketch, the list of coordinates, and the printed copy of the graph.

Example:

Column by column, enter each x-coordinate into L1 and each y-coordinate into L2. Turn on the STAT PLOT and make a connected scatter plot (xyline graph) of the data. Set an appropriate WINDOW and “square the screen by using ZOOM #5. Go to FORMAT to turn the Axes Off.

(1, -3.5)	(-5, -1)	(-1.5, 7)	(1.5, 8)	(4, 1.5)
(1, -6)	(-3, 1.5)	(-0.5, 8)	(0.5, 8)	(3, 1.5)
(-1, -6)	(-4, 1.5)	(-1.5, 8)	(1.5, 7)	(5, -1)
(-1, -3.5)	(-1, 4.5)	(-0.5, 8.5)	(0, 7.5)	(3, -1)
(-6.5, -4)	(-3, 4.5)	(0, 9)	(3, 4.5)	(6.5, -4)
(-3, -1)	(0, 7.5)	(5, 8.5)	(1, 4.5)	(1, -3.5)



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WINDOW
Xmin=-12
Xmax=12
Xscl=1
Ymin=-6
Ymax=9
Yscl=1
Xres=1
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Extension 1: The students can trade their list of coordinates and graph each other’s pictures.

Extension 2: Have the students sort their lists in ascending or descending order (use STAT #2 and #3), then make a scatter plot of this data. Determine if there is a relationship between the two lists now. Try regression equations of the different types of functions that the students have learned. (Use STAT> CALC #4 through C.)

IGO’s: AM.1.11, AM.2.6, A1.6, A2.11, PS.15, PS.18.

FUNCTIONS ACTIVITY:

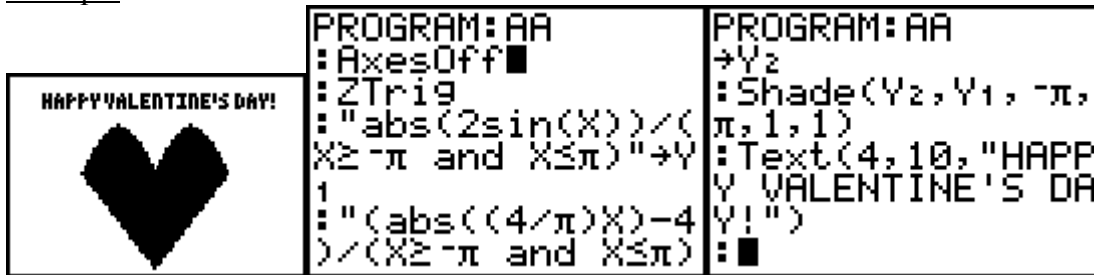
In this activity, the student will graph various functions using restricted domains, shading techniques, and text. For Valentine’s Day (or any holiday) have the students create a Valentine card. The student should enter this as a program into the calculator, then Graph Link the calculator to the computer and print out his program, window, and graph. The student will print an extra copy of his graph to use to make the Valentine card.

Materials Needed: TI-83 plus graphing calculator

Construction paper, doilies, ribbon, magic markers, colored pencils, crayons, scissors, etc.

IGO’s: A2.2, A2.13, A2.16, A2.17, A2.22, A2.23, Aa2.24, A2.27, A2.28, T.20, PC.1, PC.17, PC.19, PC.23, AM2.5.

Example:



WEB LINKS:

“The Graduation Dilemma” at

<http://education.ti.com/activity/courses/algebra/ellen/ellen01.html>

has the students collect and use data (linear functions).

“Population Dilemma” at

<http://education.ti.com/activity/courses/algebra/ellen/ellen08.html>

has the students create a model and analyze data (exponential functions).

“The Probability Dilemma” at

<http://education.ti.com/activity/courses/algebra/ellen/ellen09.html>

has the students working with probability and combinations.