


Appendix A:

TI InterActive! manual for student units 7 and 8

intro

If you need help concerning the use of TI InterActive!, you can use the built-in help function by clicking the  icon in the menu bar above.

manual

Collecting and plotting Quick Data lists

By connecting a TI-GRAPH LINK™ cable between your computer and a CBL 2™ you can collect and plot data automatically. With a CBL 2, a variety of probes such as temperature, voltage, light, and motion are supported.

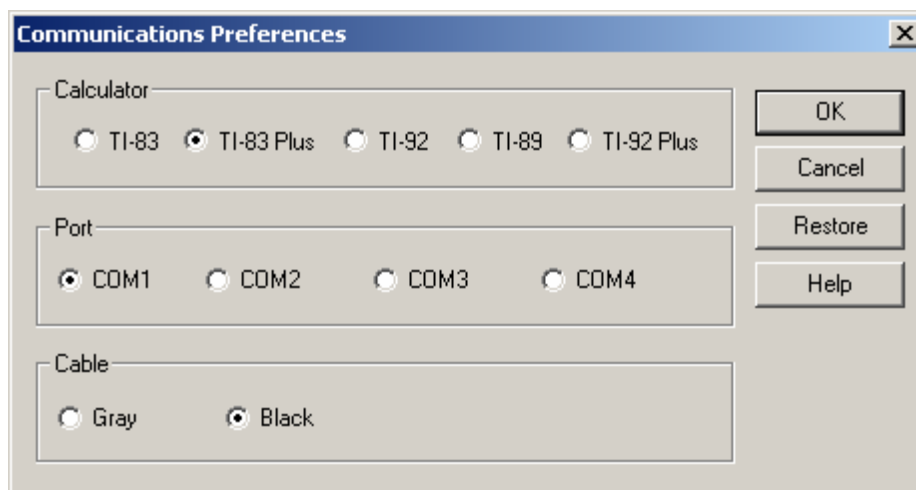
To configure the TI-GRAPH LINK connection (TI InterActive! 1.1):

Connect a probe (e.g. the Pressure sensor) on the CH1 channel of CBL 2.

Insert the other end of the TI-GRAPH LINK into the link port on the calculator. Push the plug in firmly. Click **Edit** → **Preferences** → **Communications** on the document's menu bar.


In the dialog box, click the:

- Calculator type,
- Com port (serial port number) where the TI-GRAPH LINK cable is connected,
- Type of TI-GRAPH LINK cable you are using (gray or black).



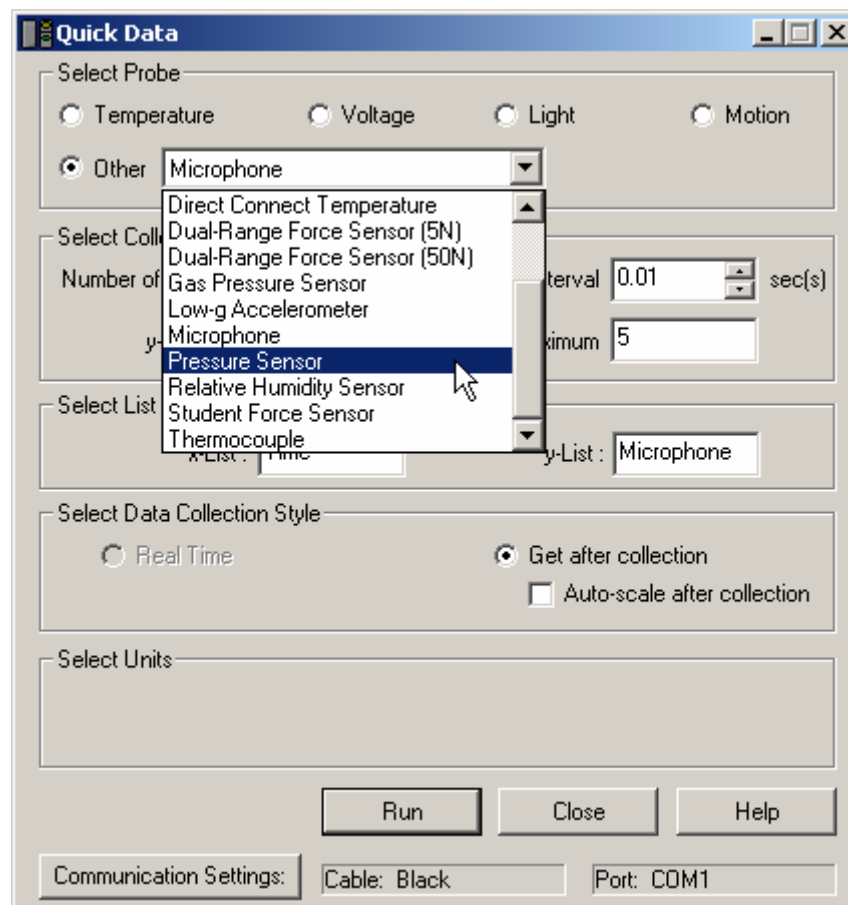
To collect and plot Quick Data lists:

a. Make sure the probe is connected properly and that the unit is turned on.

b. Click Quick Data, , on the document's TI InterActive! toolbar (or click Tools → Quick Data Tool).

A new List Editor is inserted automatically to store the collected data.

c. In the dialog box, select the connected probe and specify the appropriate settings. To select Pressure sensor click Other and then the requested probe. Specify the other appropriate settings.



Quick Data

Select Probe

Temperature
 Voltage
 Light
 Motion

Other Pressure Sensor

Select Collection Parameters

Number of Samples: 60
Collection Interval: 5.0000 sec(s)

y-Minimum: 0
y-Maximum: 700

Select List Names

x-List: Time
y-List: Pressure

Select Data Collection Style

Real Time
 Get after collection

Auto-scale after collection

Select Units

kPa
 mmHg

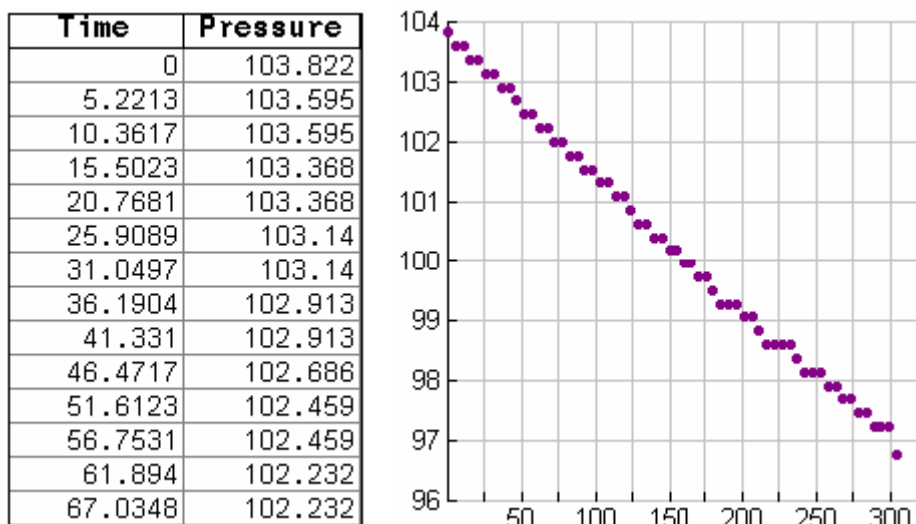
atm

Run
Close
Help

Communication Settings: Cable: Black Port: COM1

d. Click **Run**.

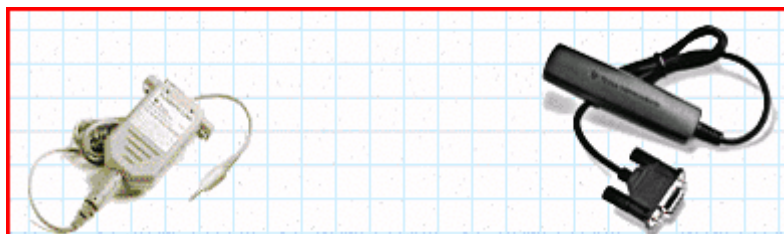
The collected data lists are placed in the associated List Editor and a new **Graph** window shows a stat plot of the data.



If necessary, click **Zoom Statistics**, , on the **Graph** window to see all collected data points.

Transferring data between a calculator and your computer

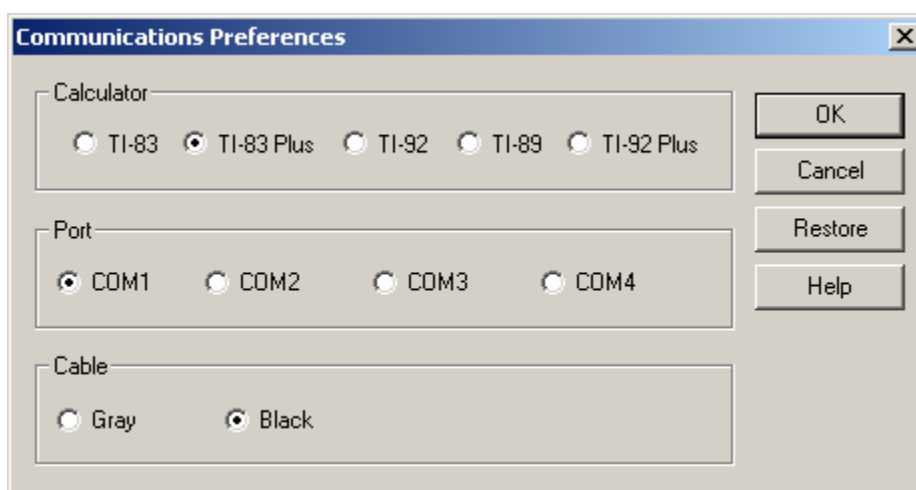
Using a TI-GRAPH LINK™ cable you can connect your TI calculator to your PC. With TI InterActive! 1.1 you can use two types of TI-GRAPH LINK cables: a gray cable and a black cable.



Insert one end of the TI-GRAPH LINK into the link port on the calculator and one end into the serial port of your PC. Push the plug in firmly.

Click **Edit → Preferences → Communications** (TI InterActive! 1.1) on the document's menu bar. On the dialog box, click the:

- Calculator type,
- Com port (serial port number) where the TI-GRAPH LINK cable is connected,
- Type of TI-GRAPH LINK cable that you are using (gray or black).

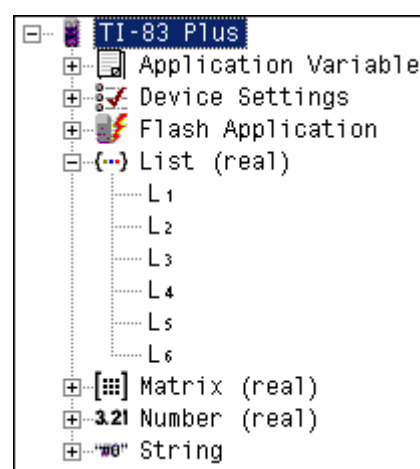


In an open List Editor:

Click **Import Calculator Data**, , on the editor's Standard toolbar (or click **File → Import → from TI Calculator**).





For a TI-83 Plus the dialog box shows the list names on the calculator.

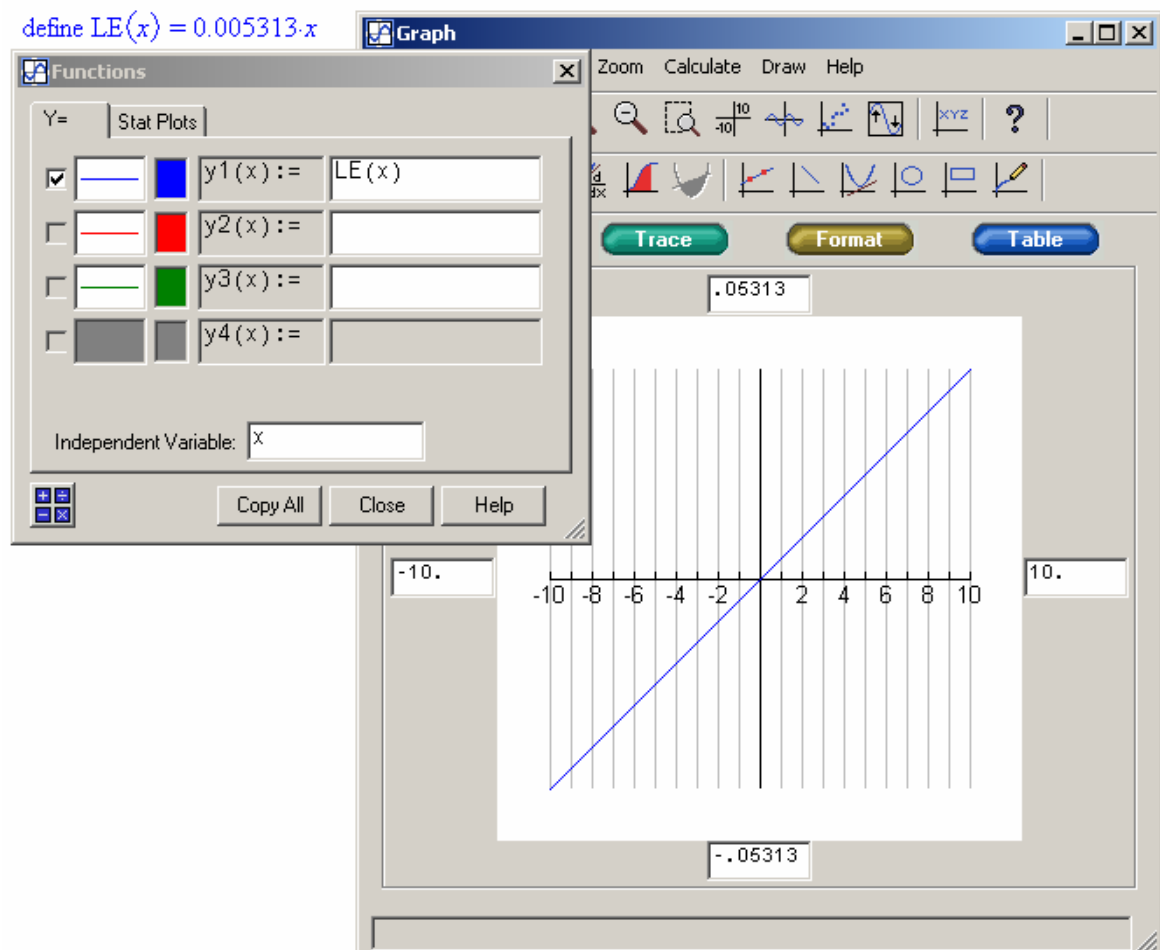
Similar to Windows® Explorer, you can click a (-) sign to collapse the hierarchical listing below it. The (-) changes to (+), which you can click to expand the listing.




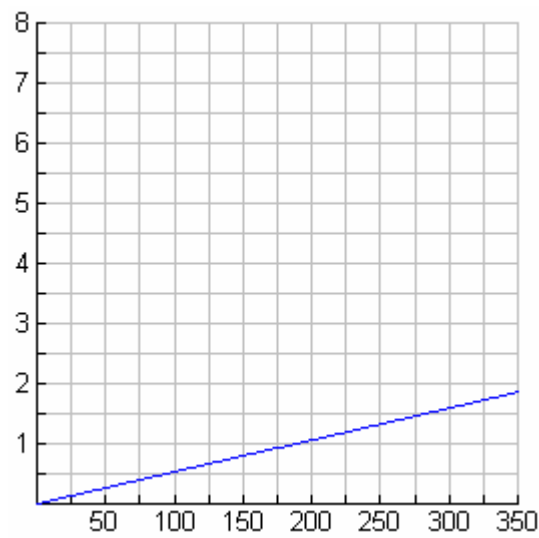
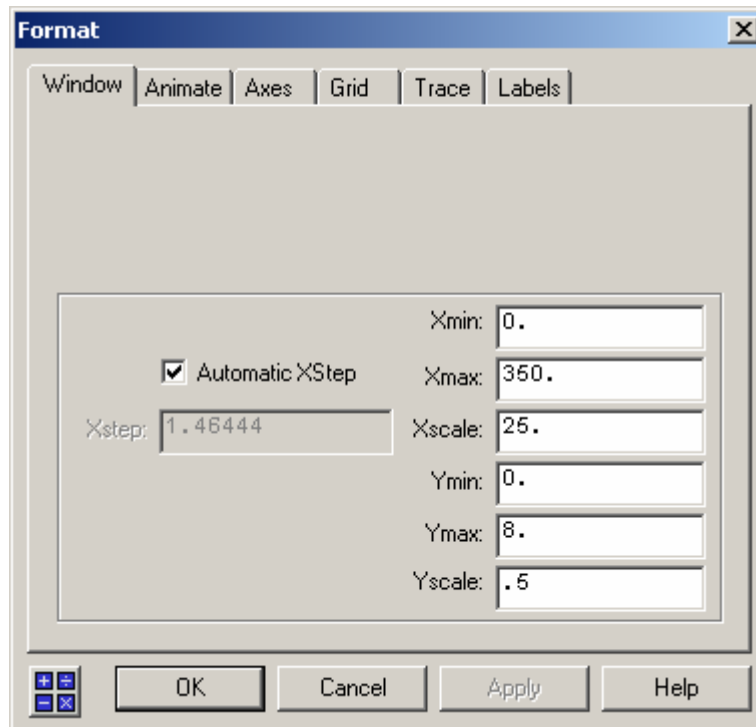
Graphing: Graphing a function defined in your document

To graph the function, for example $LE(x)$, position the entry cursor where you want to insert the graph. Then:


- Use the menu bar or the **Graph** toolbar button, , to insert a graph.
- To use the menu bar, click **Insert** → **Graph** and then click **Y=**, , or **X-Y Function**, .
- To use **Graph**, , on the TI InterActive! toolbar, be sure that the button's image shows the correct graph type.
- In the **Functions** window enter the function to graph and in the **Graph** window click **Zoom** → **Fit**.

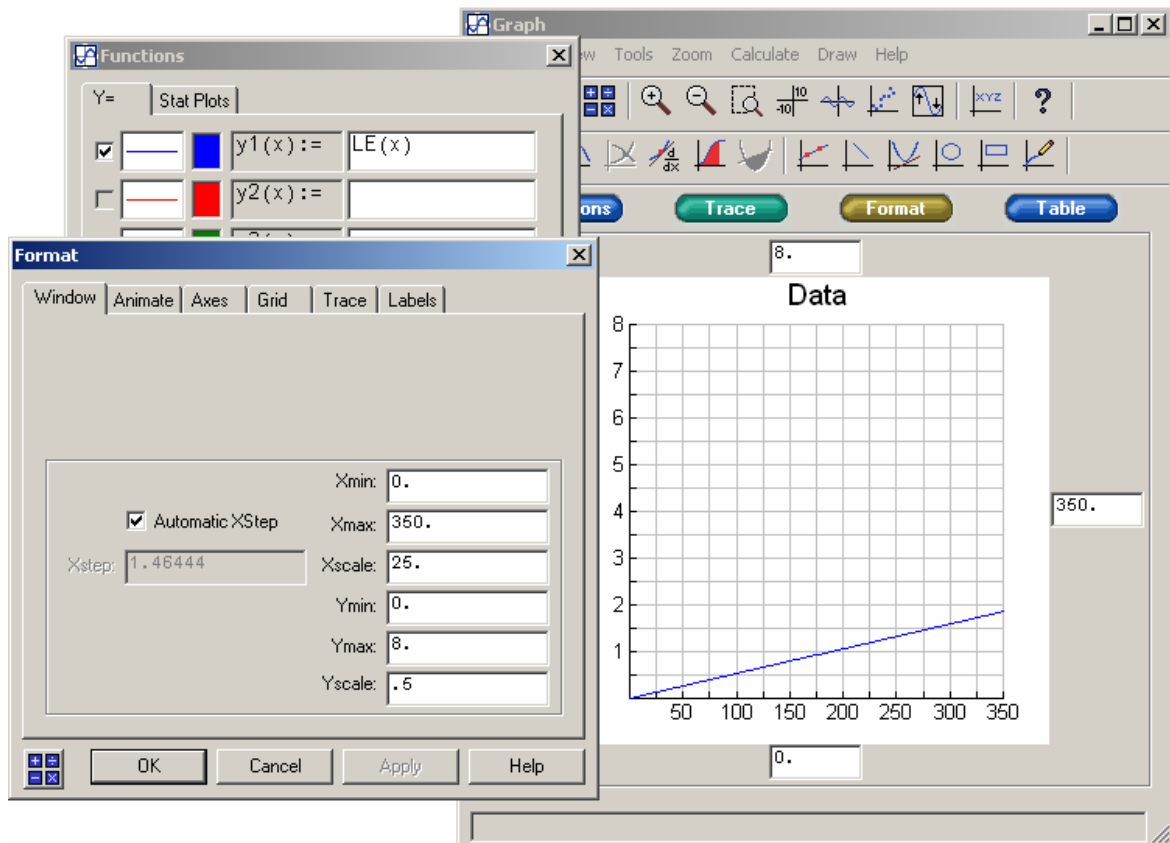


e. Use the  button to set the window:



Graphing: Adding a title and axes labels

- Open the **Graph** window for the graph.
- Click  to show the **Format** dialog box.
- Click the **Labels** tab.




On the dialog box, you can:

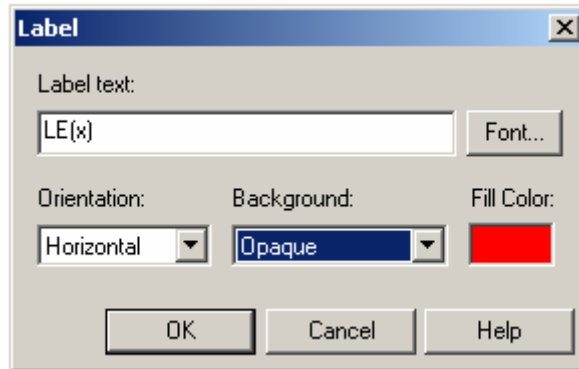
- Show or hide a title for the graph and select its default position. You can also set the title font and color.
- Show or hide a label for the x and/or y axes and select the default position. You can also set the font and color for the label.

To display the **Labels** tab directly, double-click an existing title or axis label on the **Graph** window.

Graphing: Adding text labels

a. Open the **Graph** window.

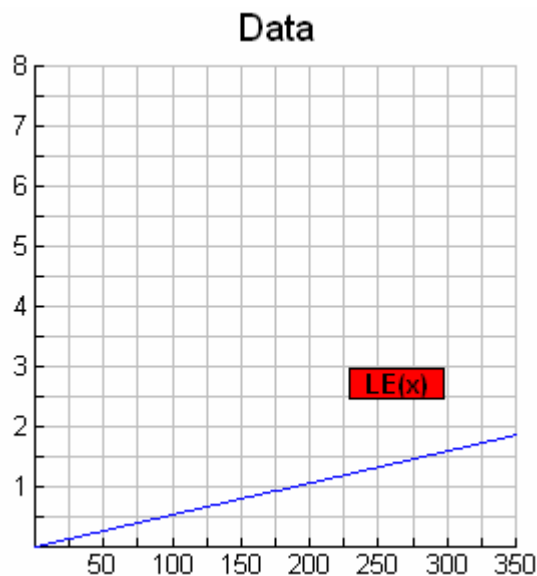
b. Click **Label**, , (or click **Draw** → **Label**).



c. On the dialog box:

- Type the text for the label. Click **Font** to set attributes such as font, size, underlining and color.
- Select an orientation of horizontal (left to right) or vertical (rotated 90 degrees). Select the background for the text as transparent (the graph's background and grid shows through the label's background) or opaque (a solid color).
- For an opaque background, set the color. This **Fill Color** is the background color, not the text color.


d. Click **OK**.

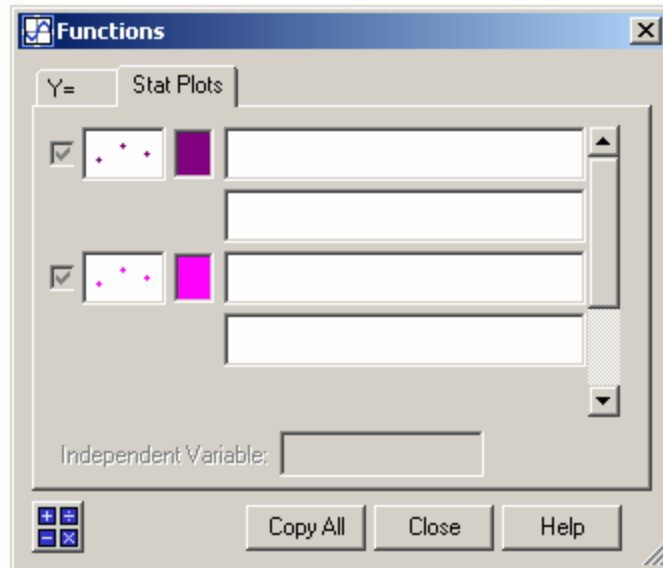



e. The dialog box closes and the label appears at the center of the graph.

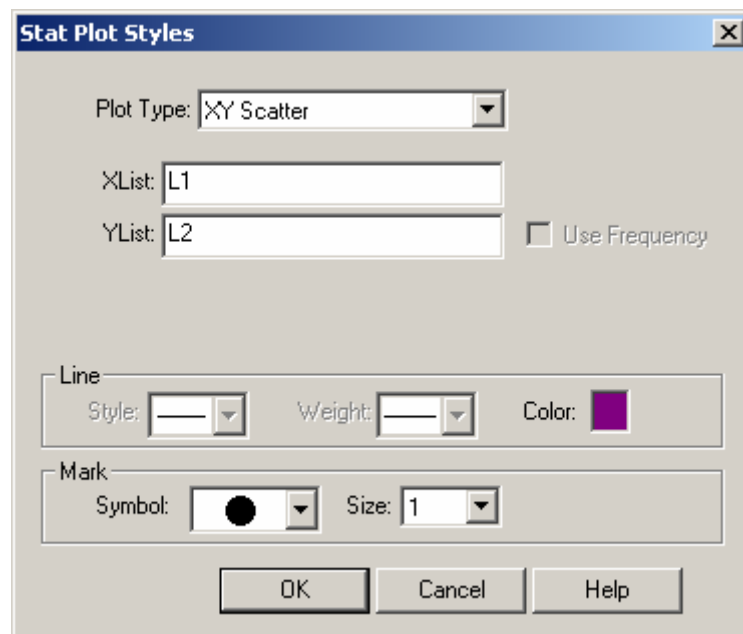
f. Click the label, hold down the left mouse button and drag the label to the appropriate location.

Graphing: Inserting a statistical plot

- Position the entry cursor where you want to insert the plot.
- Click **Graph**, , on the TI InterActive! toolbar (or click **Insert** → **Graph** → **Statistical Plot**).
- The **Graph** window and **Functions** window appear.
- In the **Functions** window be sure that the **Stat Plot** tab is selected.

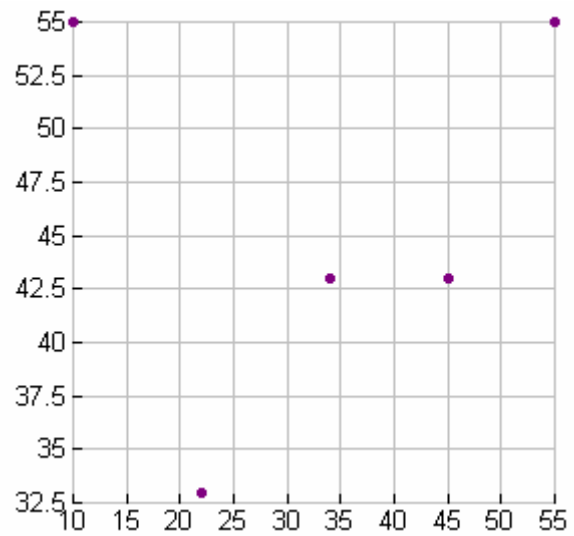
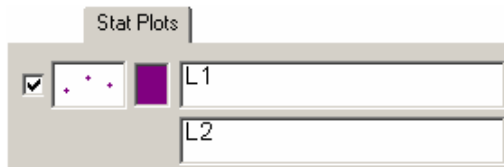


- Enter the data lists to plot. Whether you need to enter one- or two-variable data depends on the plot type you select later.
- Click the  style box to the left of the data to show the **Stat Plot Styles** dialog box.

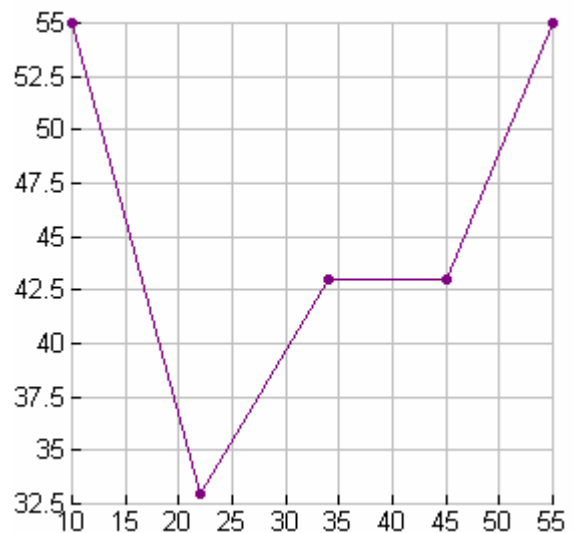
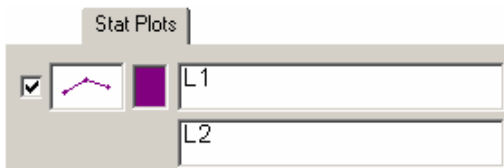


- For **Plot Type**, click  to select a plot type.


h. Select **XY Scatter** to plot single points



i. Select **XY line** to plot data as points connected by line:




j. Click **OK**.

k. The **Graph** window shows the plotted data. Click **Zoom Statistics**, , on the **Graph** window to change the window boundaries to show all data points.

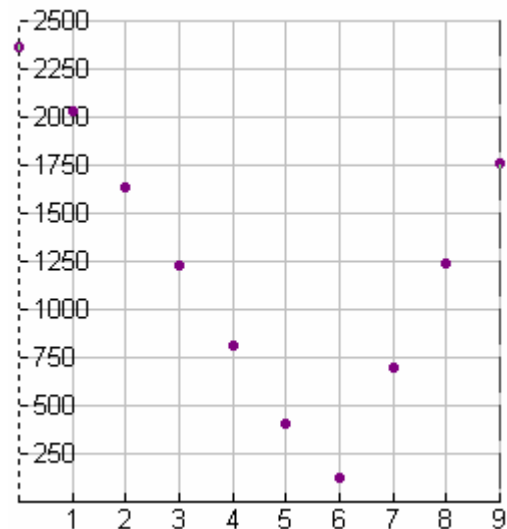
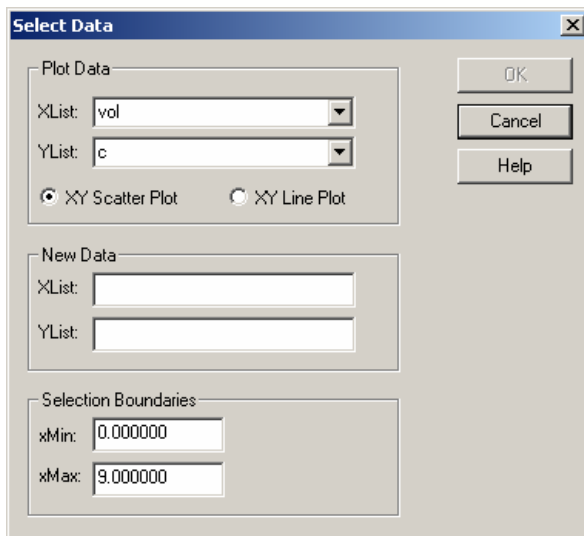
Graphing: Selecting data from a plot

In an open List Editor:

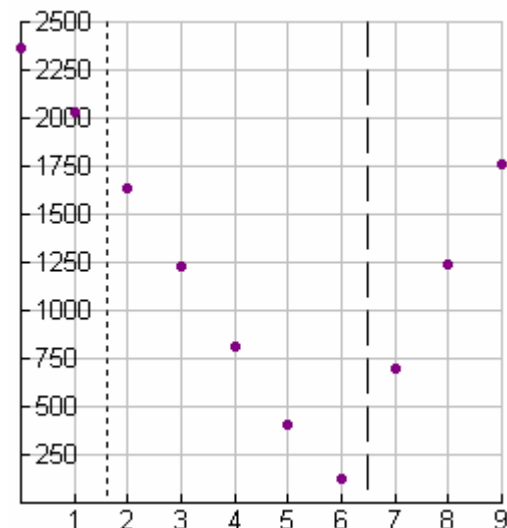
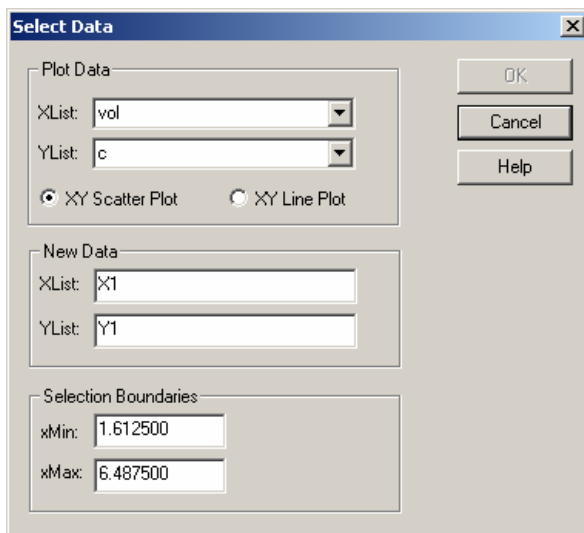
- Select the lists that contain the original x and y data points.
- Click **Select data**, , on the Data Editor's Standard toolbar (or click **Data _Select Data**).

The **Select Data** dialog box appears and a **Graph** window is placed behind the dialog box and editor.

VOL	C
0	2364.38
1	2028.97
2	1631.46
3	1229.81
4	815.73
5	409.935
6	124.223
7	695.648
8	1242.23
9	1763.96

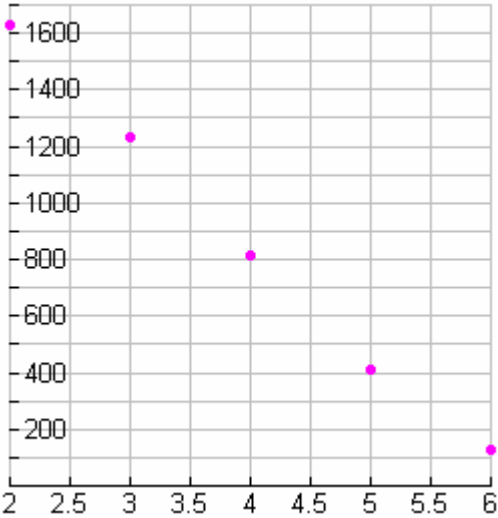


- On the dialog box for **New Data** specify where to store the selected data. You can specify new list names. In the Graph window vertical dashed lines on each side of the graph indicate the selection boundaries.
- Set the left and right boundary lines. Click a line, hold down the left mouse button and drag the line to an appropriate location. The **Selection Boundaries** area on the dialog box shows x values that correspond to the lines.




e. On the **Select Data** dialog box click **OK**. If you can't see the dialog box then click the **Data Editor** button on the taskbar.

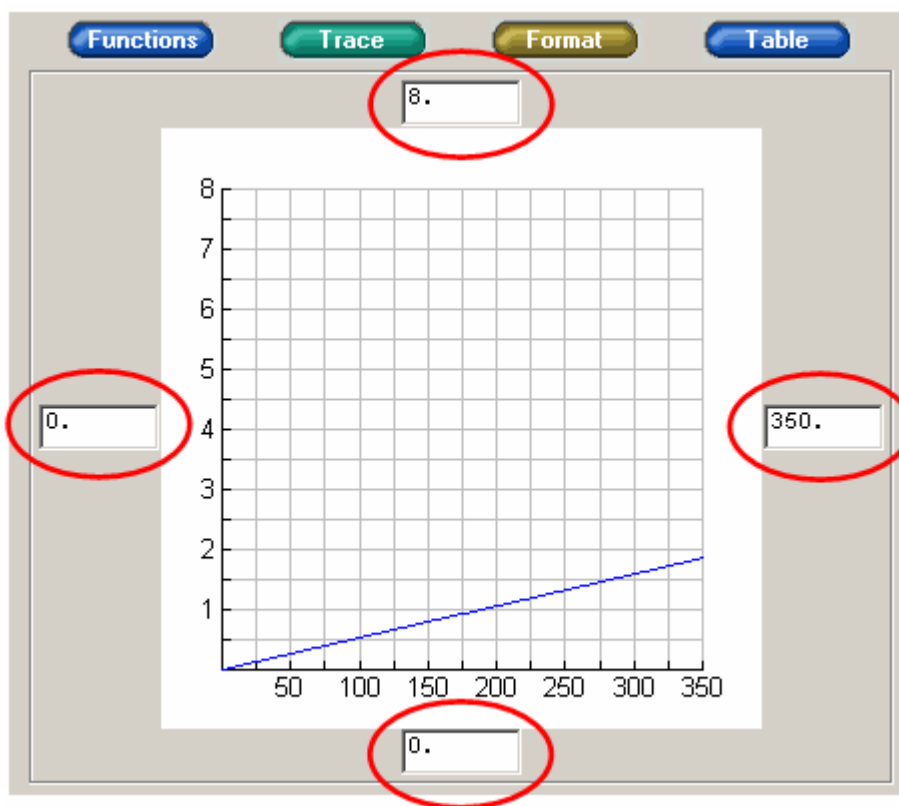
V0L	C	X1	Y1
0	2364.38	2	1631.46
1	2028.97	3	1229.81
2	1631.46	4	815.73
3	1229.81	5	409.935
4	815.73	6	124.223
5	409.935		
6	124.223		
7	695.648		
8	1242.23		
9	1763.96		



Graphing: Resizing a graph by setting windows boundaries


- Open the **Graph** window for the graph.
- Click  to show the **Format** dialog box.
- Click the **Window** tab.
- Enter the appropriate values.
- Click **OK**.

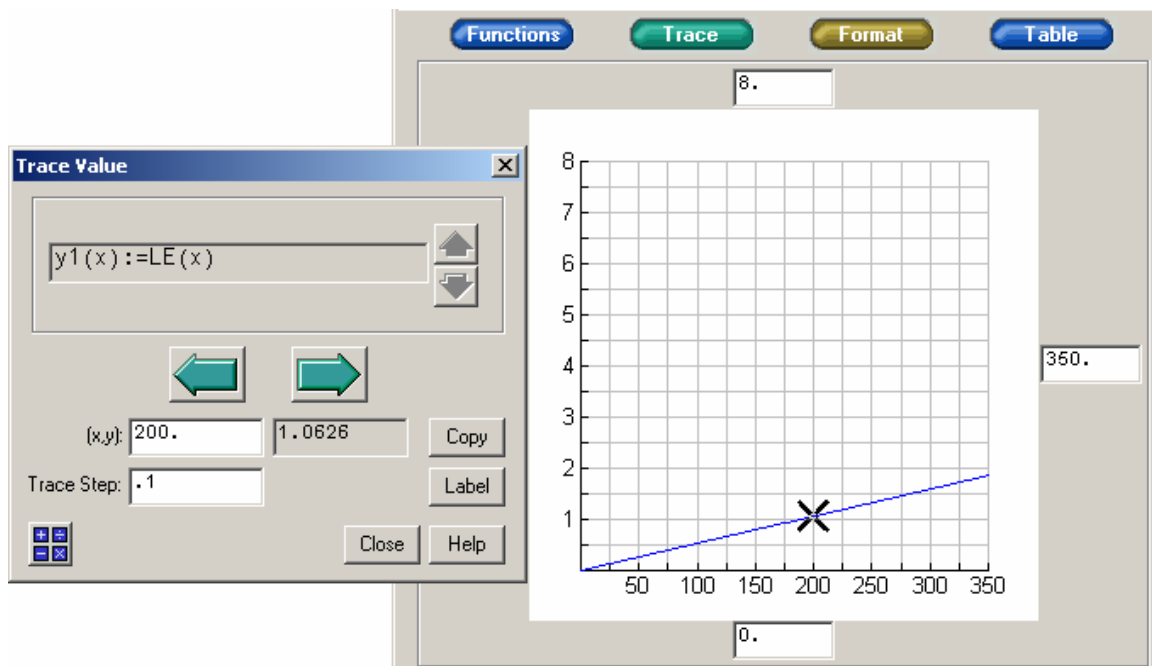
You can set window boundaries directly in the **Graph** window without having to display the **Format** dialog box. Enter appropriate values in the input boxes above, below and on either side of the graph.





Graphing: Tracing or evaluating a graphed function

For each graphed function, you can use the Trace feature to show the exact coordinates of points on the curve. You can also evaluate the function at a specified value of its independent variable.

- Open the **Graph** window for the graph.
- If you have more than one function graphed then you can go to the **Graph** window and select the function curve to use. Otherwise, the first one selected in the **Functions** window is used although you can select a different one later.
- Click  (or click **Tools** → **Trace** or **Calculate** → **Value**).
A dialog box shows the function and the coordinates of the trace cursor.



- On the dialog box:

- To select a different function, click .
- To move the trace cursor, click . The trace cursor moves along the function in increments set by **Trace Step**.
- To evaluate the function at a particular point and move the trace cursor to that point, click the coordinate box for the independent variable. (This is the only coordinate box that accepts input as all others are grayed out.) Type a value, and press **Enter** or **Tab**.
- To change the **Trace Step** click the input box. Type a value and press **Enter** or **Tab**.
- To mark the specified point on the graph and add a label that shows its coordinates, click **Label**. (After you close the dialog box, you can move, edit, or delete the label.)

- When finished tracing, click **Cancel**.

To move the trace cursor using the mouse:

- Drag it to a different location on the function.
- Click any place on the graph.


To trace a different graphed function simply click that curve on the graph.

Inserting or editing a Math Box

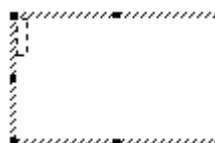
To perform a calculation in your document, you cannot simply type a math expression as text. You must insert a Math Box and then type the expression in the Math Box.

To insert a Math Box:


- a. Position the entry cursor where you want to insert the Math Box.


- b. Click **Math Box**, , on the document's TI InterActive toolbar (or click **Insert** → **Math Box**). An empty Math Box containing an entry cursor is inserted, and a Math Palette appears.

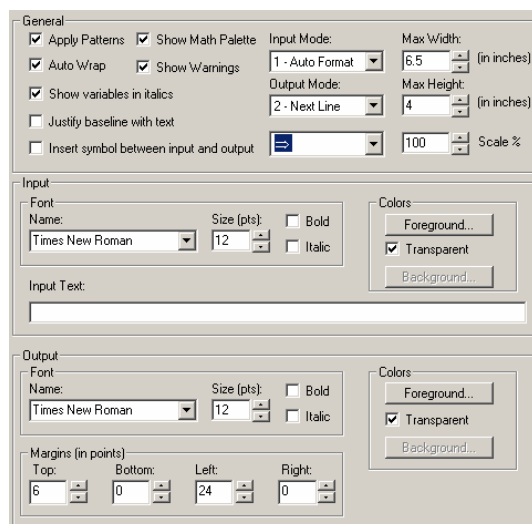
- c. Type a math expression on the keyboard, or use the Math Palette to enter numbers and functions similar to a calculator. You may use a combination of both the keyboard and Math Palette.



- d. To evaluate the expression, press **Enter** on the keyboard or click **Enter** on the Math Palette. You can also evaluate by clicking outside the Math Box.

- e. Click  to set Input and Output format.

- f. Click  to set any other Math Box properties.



To edit a Math Box:


- a. Double-click the Math Box to open it for editing.


- b. An edit cursor is shown in the Math Box and the Math Palette appears. You can change the entered expression as necessary and re-evaluate it.

Performing a regression calculation

For a regression calculation, you must have two lists of corresponding X and Y data points. You can refer to list names such as L1 and L2 in the calculation.

a. Position the entry cursor where you want to insert the results.

b. Click **Stat Calculation Tool**, , on the TI InterActive! toolbar (or click **Insert** → **Stat Calculation Tool**).

- For **Calculation Type**, click  to select the type of regression.
- For **X List** and **Y List**, type the appropriate list name. If you selected lists in a List Editor their names are shown.
- Specify names for the output residual list and regression equation. By default, **RESID→** and **regEQ(x)** are used respectively.

c. Click **Calculate**.


The **Calculation Results** tab shows the regression equation and the values of associated statistical results. The number of digits in the values, etc., are shown according to the current mode settings. By default, the regression equation is selected to be saved in the document.

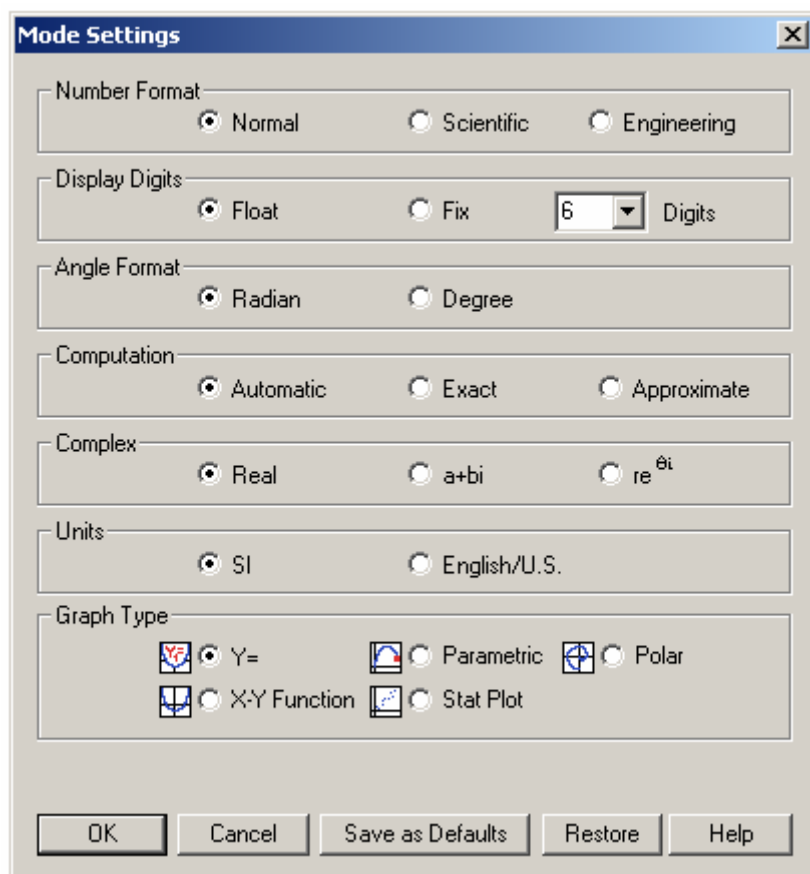
d. On the **Calculation Results** tab:

- (Optional) Type a title to display with the results.
- To select or deselect a result item, click it to check or uncheck its box.
- Click **Save Results** to insert the selected items into your document.

Setting the number format

Mode settings control the format in which numbers are displayed, whether angles are treated as radians or degrees, the Computation mode, etc.

- Click **Mode Settings**, , on the document's TI InterActive! toolbar (or click **Edit** → **Mode Settings**).




- Select the number format and/or displayed digits.
- Click **OK**.

Using the Command Catalog to select functions

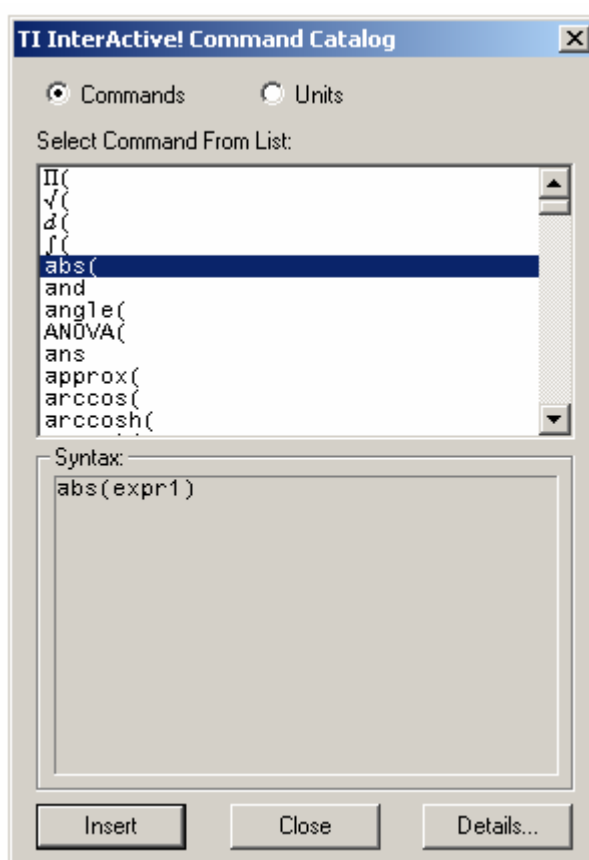
The Command Catalog is an alphabetical list of all TI InterActive! math functions and operators (commands). Although these commands are available in various menus and using buttons on the Math Palette, the Command Catalog lets you access them from one convenient list. It also gives you help information about the commands.

When you select a command its name or symbol is inserted at the entry cursor. You should position the cursor as necessary before selecting the command. Then:

- Click  in the upper-left corner of the Math Palette.

The TI InterActive! Command Catalog appears. Commands are listed in alphabetical order.

Symbols (+, %, $\sqrt{\quad}$, \sum etc.) are at the end of the list.



- Scroll through the list and select the appropriate command to highlight it.
- Click **Insert** to insert the abs() command and then close the Command Catalog. You can also double-click the command to insert it.
- The syntax for the highlighted command is shown below the list of commands. For more detailed information about the command and examples of how it is used, click Details.