



Getting Started with the TI-84 Plus C Silver Edition Graphing Calculator



This guidebook applies to software version 4.0. To obtain the latest version of the documentation, go to education.ti.com/go/download.

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Getting Started with the TI-84 Plus C Silver Edition

Documentation Conventions

This Getting Started guide is similar to Chapter 1 of the TI-84 Plus C Silver Edition guidebook. Several of the chapters in the full guidebook are referenced in this Getting Started guide. The full guidebook is available as a free download from education.ti.com/go/download.

In this document, the TI-84 Plus C Silver Edition graphing calculator is also referred to as the TI-84 Plus C.

Using the TI-84 Plus C in the Classroom

The TI-84 Plus C shares many features with the TI-84 Plus. However, some features you may be accustomed to using in the classroom may differ. Some of these differences are listed here.

- TI-Navigator™ software supports the TI-84, TI-84 Plus, and TI-84 Plus SE. *TI-Navigator™ software does not support the TI-84 Plus C.*
- TI-84 Plus C does not work with TI-Presenter™ video adapter or ViewScreen™ overhead panel, but the TI-84 Plus C view option in the TI-SmartView™ software allows you to project the graphing calculator emulator to the classroom.
- Some files and variables are compatible between the TI-84 Plus C and the TI-84 Plus family of graphing calculators. For more information on file compatibility, see *Linking Compatibility* later in this chapter.
- The TI-84 Plus C graphing calculator comes equipped with a Li-ion rechargeable battery. To ensure battery life, store the graphing calculators in the TI-84 Plus C Charging Station, or connect individual graphing calculators to a wall charger.

Warning: RAM memory will be lost if the battery charge is lost. You should back up or archive your variables if your battery power gets low.

For more information on the batteries and the charging station, see *Battery Information* and *TI-84 Plus C Charging Station* later in this chapter.

Using Color on the TI-84 Plus C

The TI-84 Plus C graphing calculator has many color options and a high resolution display that allows more information to be shown on the screen. The TI-84 Plus C uses color in the following ways:

- Y= editor for line color.
- DRAW commands for line color, such as vertical lines, circles, and text on the graph screen.
- The graph format screen for grid, axes, or border color, and applying a background image or color.
- Statistical Plots.

The color options are selected using a spinner, which can contain various options depending on the feature. Press \leftarrow and \rightarrow to scroll through the color options to set a color.

Note: Take care to choose appropriate color combinations for the graph areas so that all features are visible.

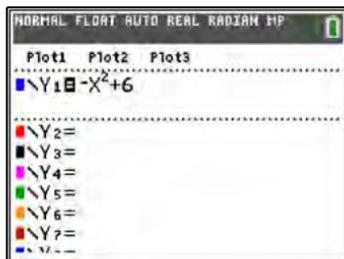
- ▶ You can reset the calculator to its default settings, including color settings, by pressing 2^{nd} [MEM] **7 2 2**.

Using Color on the Graph Screen

The examples below show how to set line color on the Y= editor using the spinner, and how to set a Background Image for a graph.

Enter an equation in the Y= editor.

1. Press $\boxed{Y=}$.
2. Press $\boxed{(-)} \boxed{X,T,\theta,n} \boxed{x^2} \boxed{+} \boxed{6}$.

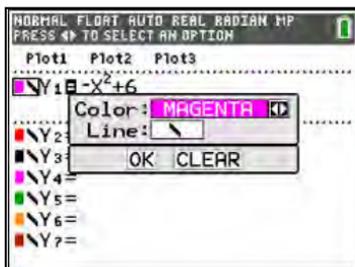


To set the line color in the Y= editor:

3. Press [2nd] [4] [4] [4] to select the color/line box to the left of Y=, and then press [ENTER] .

The spinner dialog box becomes active.

4. Press [2] [2] [2] to select magenta.
5. Press [v] .



Note: The thick line style is the default. It can be changed by pressing [4] or [2] .

6. Press [v] to highlight OK and then press [ENTER] .

To set a Background Image:

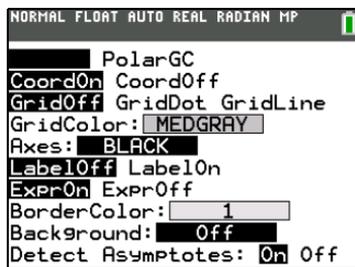
7. Press [2nd] [FORMAT] .

Set grid color, axes, and border color as desired.

8. Press [u] or [d] as necessary to highlight Background.

The spinner dialog box becomes active.

9. Press [2] as necessary to select the desired Background Image or color.

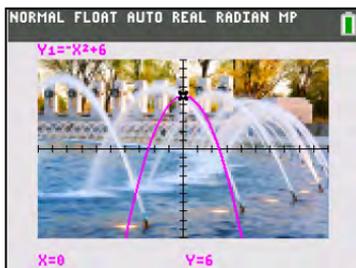


Note: Your pre-loaded Image Var may be different than the one displayed.

Note: To create Background Image Vars, use the free TI Connect™ software to convert and send images to your TI-84 Plus C graphing calculator.

10. Press **TRACE** to see the graph and trace points.

Note: You can manipulate the graph to “fit” an object in the Background Image Var. You can also use QuickPlot and Fit Equation to fit an equation to a shape. (See *QuickPlot* later in this chapter.)



TI-84 Plus C Keyboard

Generally, the keyboard is divided into these zones: graphing keys, editing keys, advanced function keys, and scientific calculator keys.

Keyboard Zones

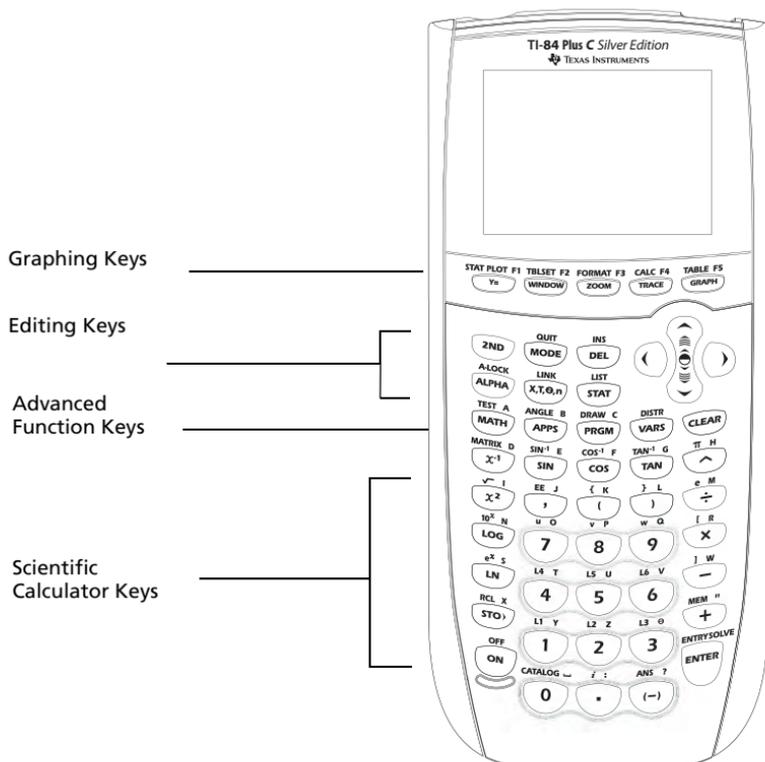
Graphing—Graphing keys access the interactive graphing features. The third function of these keys (**ALPHA** [F1]-[F4]) displays the shortcut menu, which include templates for fractions, n/d, quick matrix entry, and some of the functions found on the MATH and VARS menus. When some features are active, you may also see a shortcut menu in the **ALPHA** [F5] location for special shortcuts available in that particular feature.

Editing—Editing keys allow you to edit expressions and values.

Advanced—Advanced function keys display menus that access the advanced functions.

Scientific—Scientific calculator keys access the capabilities of a standard scientific calculator.

TI-84 Plus C Silver Edition



Using the Color-Coded Keyboard

The keys on the TI-84 Plus C are color-coded to help you easily locate the key you need.

The light colored keys are the number keys. The keys along the right side of the keyboard are the common math functions. The keys across the top set up and display graphs. The **[APPS]** key provides access to applications such as Polynomial Root Finder and Simultaneous Equation Solver, Inequality Graphing, and more.

Note: Catalog Help is an application on the TI-84 Plus, but is built into the TI-84 Plus C operating system. The Catalog Help contains syntax information for most menu items, and most of the functions in the catalog. To use Catalog Help on the TI-Plus C, select a menu item and then press **[+]**.

The primary function of each key is printed on the keys. For example, when you press **[MATH]**, the **MATH** menu is displayed.

Using the $\boxed{2\text{nd}}$ and $\boxed{\text{ALPHA}}$ Keys

The secondary function of each key is printed above the key in the same color as the $\boxed{2\text{nd}}$ key. When you press the $\boxed{2\text{nd}}$ key, the character, abbreviation, or word printed above the other keys becomes active for the next keystroke. For example, when you press $\boxed{2\text{nd}}$ and then $\boxed{\text{MATH}}$, the **TEST** menu is displayed. This guidebook describes this keystroke combination as $\boxed{2\text{nd}} \boxed{\text{TEST}}$.

The flashing cursor changes to \uparrow when you press $\boxed{2\text{nd}}$. The \uparrow may show in the cursor location, or in the status bar on the top of the screen.



2nd key indicator on the status bar

Many keys also have a third function. These functions are printed above the keys in the same color as the $\boxed{\text{ALPHA}}$ key. The third functions enter alphabetic characters and special symbols, as well as access SOLVE and shortcut menus. For example, when you press $\boxed{\text{ALPHA}}$ and then $\boxed{\text{MATH}}$, the letter **A** is entered. This guidebook describes this keystroke combination as $\boxed{\text{ALPHA}} \boxed{\text{A}}$.

If you want to enter several alphabetic characters in a row, you can press $\boxed{2\text{nd}} \boxed{\text{A-LOCK}}$ to lock the alpha key in the On position and avoid having to press $\boxed{\text{ALPHA}}$ multiple times. Press $\boxed{\text{ALPHA}}$ a second time to unlock it.

The flashing cursor changes to A when you press $\boxed{\text{ALPHA}}$, even if you are accessing a function or a menu. The A may show in the cursor location, or in the status bar on the top of the screen.

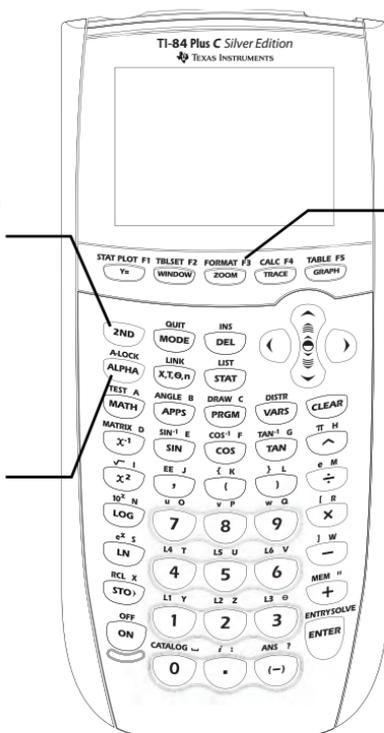


Alpha key indicator on the status bar

2nd
Accesses the second function printed above each key.

ALPHA
Accesses the third function printed above each key.

ALPHA [F1] - [F4]
Access shortcut menus for functionality including templates for fractions, n/d, and other functions.



Turning On and Turning Off the TI-84 Plus C

Turning On the Graphing Calculator

To turn on the TI-84 Plus C, press **[ON]**. An information screen displays reminding you that you can press **ALPHA** [F1] - [F4] to display the shortcut menus, and press **[+]** for Catalog Help. This message also displays when you reset RAM. When some features are active, you may also see a shortcut menu in the **ALPHA** [F5] location for special shortcuts available in that particular feature.

- ▶ To continue but not see this information screen again, press **1**.
- ▶ To continue and see this information screen again the next time you turn on the TI-84 Plus C, press **2**.
- If you previously had turned off the graphing calculator by pressing **2nd** [OFF], the TI-84 Plus C displays the home screen as it was when you last used it and clears any error. (The information screen displays first, unless you chose not to see it again.) If the home screen is blank, press **▲** to scroll through the history of previous calculations.

- If Automatic Power Down™ (APD™) had previously turned off the graphing calculator, the TI-84 Plus C will return exactly as you left it, including the display, cursor, and any error.
- If the TI-84 Plus C is turned off and connected to another graphing calculator or personal computer, any communication activity will “wake up” the TI-84 Plus C.

To prolong the life of the battery, APD™ turns off the TI-84 Plus C automatically after about five minutes without any activity.

Turning Off the Graphing Calculator

To turn off the TI-84 Plus C manually, press **[2nd]** **[OFF]**.

- All settings and memory contents are retained by the Constant Memory™ function.
- Any error condition is cleared.

Setting the Display Brightness

Adjusting the Display Brightness

You can adjust the display brightness to suit your viewing angle and lighting conditions.

To adjust the contrast, follow these steps.

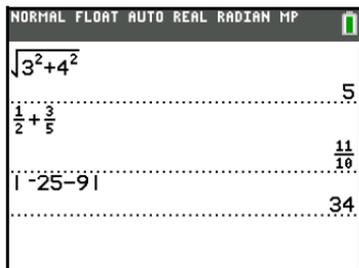
- ▶ Press **[2nd]** **[▽]** to darken the screen one level at a time.
- ▶ Press **[2nd]** **[△]** to lighten the screen one level at a time.

The TI-84 Plus C retains the brightness setting in memory when it is turned off.

Automatic Dimming

The TI-84 Plus C has an automatic dimming feature. To help prolong battery life, the screen dims after 90 seconds of no activity. Press **[ON]** to return the screen to the preset brightness setting. Pressing **[ON]** does not affect any calculations, cursors, or error messages.

The Home Screen

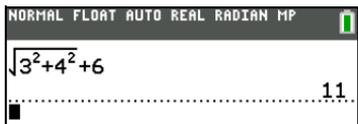


The home screen is the primary screen of the TI-84 Plus C. On this screen, enter instructions to execute and expressions to evaluate. The answers are displayed on the same screen. Most calculations are stored in the history on the home screen. You can press \leftarrow and \rightarrow to scroll through the history of entries on the home screen and you can paste the entries or answers to the current entry line.

Press 2^{nd} [QUIT] from any screen to go to the home screen.

Enter a calculation.

1. Press 2^{nd} [QUIT] to return to the home screen, if needed.
2. Press 2^{nd} [$\sqrt{\quad}$] 3 [x^2] + 4 [x^2] \rightarrow + 6 [ENTER].



Note: When you are in a MathPrint™ template, the cursor turns to a right arrow \rightarrow to indicate that you must press \rightarrow to get out of the template before you continue entering the calculation.



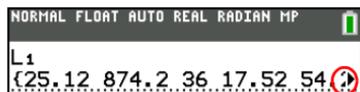
Displaying Entries and Answers

- When text is displayed, the TI-84 Plus C screen can display a maximum of 10 lines with a maximum of 26 characters per line in Classic mode. In MathPrint™ mode, fewer lines and fewer characters per line may be displayed, depending on the MathPrint™ template used.
- A dotted line separates each set of entries and answers.
- If an expression on the home screen, the Y= editor (Chapter 3 in the guidebook), or the program editor (Chapter 16 in the guidebook) is longer than one line, it wraps to the beginning of the next line in Classic mode. In MathPrint™ mode, an expression on the home screen or Y= editor that is longer than one line scrolls off the screen to the right. An arrow on the right side of the screen indicates that you can scroll right to see more of the expression. In numeric editors such as the window screen (Chapter 3), a long expression scrolls to the right and left in both Classic and MathPrint™ modes.

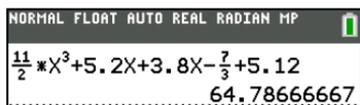
Tip: Press $\boxed{2\text{nd}} \boxed{\rightarrow}$ to move the cursor to the end of the line. Press $\boxed{2\text{nd}} \boxed{\leftarrow}$ to move the cursor to the beginning of the line.

- When an entry is executed on the home screen, the answer is displayed on the right side of the next line.
- The mode settings control the way the TI-84 Plus C interprets expressions and displays answers.
- Press $\boxed{\text{MODE}}$ to switch between Classic and MathPrint™ modes and see expressions in both formats. The Classic and MathPrint™ modes are on the top line of the mode screen.
- If an answer, such as a list or matrix, is too long to display entirely on one line, an arrow (MathPrint™) or an ellipsis (Classic) is displayed to the right or left. Press $\boxed{\rightarrow}$ and $\boxed{\leftarrow}$ to display the answer.

MathPrint™ (default)



← Entry
← Answer



← Entry
← Answer

Classic

NORMAL FLOAT AUTO REAL RADIAN CL

L1
{25, 12, 874.2, 36, 17.52, 54}

← Entry
← Answer

NORMAL FLOAT AUTO REAL RADIAN CL

$\frac{11}{2} * X^3 + 5.2X + 3.8X - \frac{7}{3} + 5.12$
64.78666667

← Entry
← Answer

Scrolling Through Previous Entries on the Home Screen

If all lines of the display are full, text scrolls off the top of the display.

You can scroll up through previous entries and answers on the home screen, even if you have cleared the screen. When you find an entry or answer that you want to use, you can select it and paste it (press **ENTER**) on the current entry line.

Note: List and matrix answers cannot be copied and pasted to the new entry line. However, you can copy the list or matrix command to the new entry line and execute the command again to display the answer.

- ▶ Press **▲** or **▼** to move the cursor to the entry or answer you want to copy and then press **ENTER**.

The TI-84 Plus C highlights the entry the cursor is on to help you select your desired choice.

HISTORY

L1
{25, 12, 874.2, 36, 17.52, 54}

$\frac{11}{2} * X^3 + 5.2X + 3.8X - \frac{7}{3} + 5.12$

64.78666667

The entry or answer that you copied is automatically pasted on the current input line at the cursor location.

Note: If the cursor is in a MathPrint™ expression, press **ALPHA** **▲** to move the cursor out of the expression and then move the cursor to the entry or answer you want to copy.

- ▶ Press **CLEAR** or **DEL** to delete an entry/answer pair. After an entry/answer pair has been deleted, it cannot be displayed or recalled again.

Note: For more information on using previous entries, see *ENTRY (Last Entry) Storage Area* later in this chapter.

Returning to the Home Screen

To return to the home screen from any other screen, press **2nd** [QUIT].

Status Bar

The status bar displays on all screens, and gives information about the selected calculator mode settings, any context help available for the item you currently have selected, and battery status. The status bar may also show a busy indicator if the calculator is performing an operation, **⏏** to indicate the calculator is in alpha status, and **⏏** to indicate the secondary function is active.

Selected mode settings are displayed on the top line of the status bar when the cursor is in the active entry area. Mode settings do not display when the cursor is in the home screen history, since the mode may have been different for previous calculations.

Context help, if available, is displayed on the second line. The battery status icon, busy indicator, alpha indicator, and second key indicator are on the right. When you scroll into the home screen history, the context help on the status bar displays HISTORY.

In the example below, the cursor is on the GridColor option. The context help for GridColor is on the second line of the status bar.

The screenshot shows the status bar of a TI-84 Plus C Silver Edition calculator. The status bar is divided into three sections: mode settings, context help, and status icons. The mode settings section at the top displays 'NORMAL FLOAT AUTO REAL RADIAN MP' and 'PRESS $\leftarrow\rightarrow$ TO SELECT AN OPTION'. The context help section displays 'GridColor: BLUE' with a cursor on the word 'BLUE'. The status icons section on the right displays a battery icon, a busy indicator, an alpha indicator, and a second key indicator. Annotations with arrows point to these sections: 'Selected MODE settings.' points to the mode settings, 'Context help for current cursor position.' points to the context help, and 'Battery icon.' points to the battery icon.

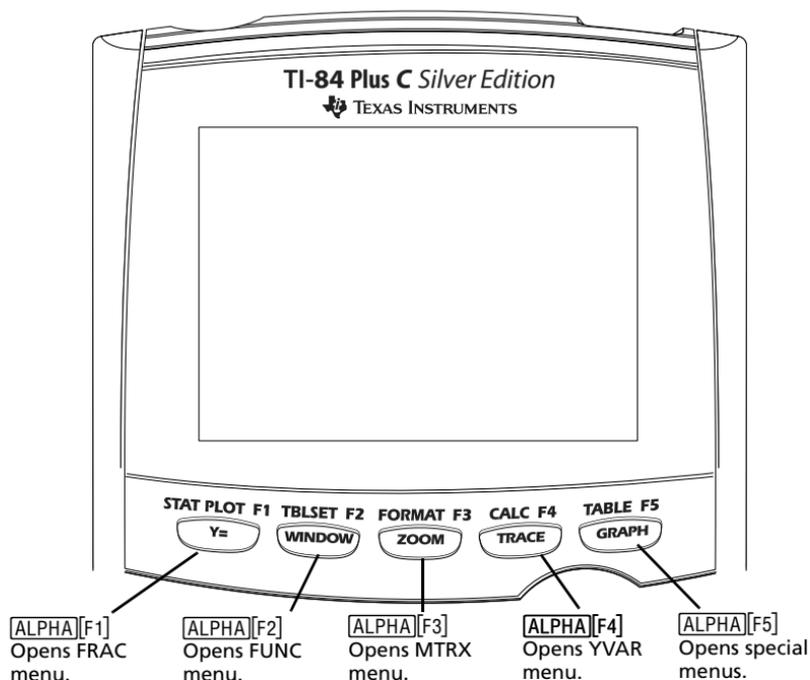
Selected MODE settings.

Context help for current cursor position.

Battery icon.

This area of the status bar also displays the busy indicator, alpha indicator, and second key indicator, depending on the state of the graphing calculator.

Using Shortcut Menus



Shortcut menus allow quick access to the following:

- Templates to enter fractions, and to toggle between whole and mixed fractions, and fractions and decimals.
- Selected functions from the MATH MATH and MATH NUM menus as you would see them in a textbook, when in MathPrint™ mode. Functions include absolute value, numeric differentiation, numeric integration, summation, log base n, square root, permutations, combinations, and factorials.
- Quick MathPrint™ matrix entry, when available.
- Names of function variables from the VARS Y-VARS menu.

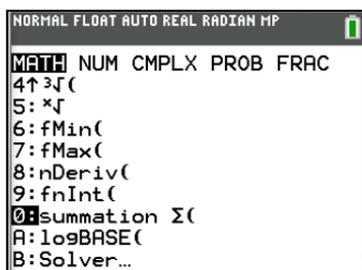
To open a shortcut menu, press **[ALPHA]** plus the F-key that corresponds to the menu, that is, **[F1]** for FRAC, **[F2]** for FUNC, **[F3]** for MTRX, **[F4]** for YVAR, or **[F5]** for special menus within interactive graph activities such as DRAW or QuickPlot and Fit Equation, and more. To select a menu item, either press the number corresponding to the item, or use the arrow keys to move the cursor to the appropriate line and then press **[ENTER]**.

All shortcut menu items except matrix templates can also be selected using standard menus. For example, you can choose the summation template from three places:

FUNC shortcut menu



MATH MATH menu



Catalog



The shortcut menus are available to use where input is allowed. If the calculator is in Classic mode, or if a screen is displayed that does not support MathPrint™ display, entries will be displayed in Classic display. The MTRX menu is only available in MathPrint™ mode on the home screen and in the Y= editor.

Note: Shortcut menus may not be available if α plus F-key combinations are used by an application that is running.

Busy Indicator



Display Cursors

In most cases, the appearance of the cursor indicates what will happen when you press the next key or select the next menu item to be pasted as a character.

Note: The second cursor and alpha cursor may appear on the status bar, depending on the context.

Cursor	Appearance	Effect of Next Keystroke
Entry	Solid rectangle 	A character is entered at the cursor; any existing character is overwritten.
Insert	Underline —	A character is inserted in front of the cursor location.
Second	Reverse arrow 	A 2nd character is entered or a 2nd operation is executed.
Alpha	Reverse A 	An alpha character is entered, SOLVE is executed, or shortcut menus are displayed.
Full	Checkerboard rectangle 	No entry; the maximum characters are entered at a prompt or memory is full. Also indicates the limit of the allowed MathPrint™ mode levels.
MathPrint™	Right arrow 	The cursor moves to either the next part of the template or out of the template. Press the right arrow to move out of all MathPrint™ templates before entering the remaining terms in an expression.

If you press $\boxed{\text{ALPHA}}$ during an insertion, the cursor becomes an underlined **A** ($\underline{\text{A}}$). If you press $\boxed{2\text{nd}}$ during an insertion, the underlined cursor becomes an underlined \uparrow ($\underline{\uparrow}$).

Note: If you highlight a small character such as a colon or a comma and then press $\boxed{\text{ALPHA}}$ or $\boxed{2\text{nd}}$, the cursor does not change because the cursor width is too narrow.

Graphs and editors sometimes display additional cursors, which are described in the guidebook.

Setting Modes

Checking Mode Settings

Mode settings control how the TI-84 Plus C displays and interprets numbers and graphs. Mode settings are retained by the Constant Memory™ feature when the TI-84 Plus C is turned off. All numbers, including elements of matrices and lists, are displayed according to the current mode settings.

To display the mode settings, press $\boxed{\text{MODE}}$. The current settings are highlighted. Defaults are highlighted below. The following pages describe the mode settings in detail.

Note: When you press $\boxed{\text{MODE}}$, the cursor is on NORMAL by default. Press $\boxed{\Delta}$ to switch between the MathPrint™ and Classic modes.

MATHPRINT CLASSIC	Controls whether inputs and outputs on the home screen and in the Y= editor are displayed as they are in textbooks
NORMAL SCI ENG	Numeric notation
FLOAT 0 1 2 3 4 5 6 7 8 9	Number of decimal places in answers
RADIAN DEGREE	Unit of angle measure
FUNCTION PARAMETRIC POLAR SEQ	Type of graphing
THICK DOT-THICK THIN DOT-THIN	Resets all Y= line styles
SEQUENTIAL SIMUL	Whether to plot sequentially or simultaneously
REAL $a+bi$ $re^{\theta i}$	Real, rectangular complex, or polar complex
FULL HORIZONTAL GRAPH-TABLE	Full screen, two split-screen modes
FRACTION TYPE: n/d Un/d	Displays results as simple fractions or mixed fractions
ANSWERS: AUTO DEC FRAC-APPROX	Controls the format of the answers

GOTO 2ND FORMAT GRAPH: No Yes	Shortcut to the Format Graph screen (2nd [FORMAT])
STAT DIAGNOSTICS: Off On	Determines which information is displayed in a statistical regression calculation
STAT WIZARDS: On Off	Determines if syntax help prompts are provided for optional and required arguments for many statistical, regression and distribution commands and functions.
SET CLOCK	Sets the time and date.

Changing Mode Settings

To change mode settings, follow these steps.

1. Press \blacktriangledown or \blacktriangleleft to move the cursor to the line of the setting that you want to change.
2. Press \blacktriangleright or \blacktriangleleft to move the cursor to the setting you want.
3. Press ENTER .

Setting a Mode from a Program

You can set a mode from a program by entering the name of the mode as an instruction; for example, **Func** or **Float**. From a blank program command line, select the mode setting from the mode screen; the instruction is pasted to the cursor location.



MATHPRINT, CLASSIC

MathPrint™ mode displays most inputs and outputs the way they are

shown in textbooks, such as $\frac{1}{2} + \frac{3}{4}$ and $\int_1^2 x^2 dx$.

Classic mode displays expressions and answers as if written on one line, such as $1/2 + 3/4$.

Note: If you switch between these modes, most entries will be preserved; however matrix calculations will not be preserved.

NORMAL, SCI, ENG

Notation modes only affect the way an answer is displayed on the home screen. Numeric answers can be displayed with up to 10 digits and a two-digit exponent and as fractions. You can enter a number in any format.

Normal notation mode is the usual way we express numbers, with digits to the left and right of the decimal, as in **12345.67**.

Sci (scientific) notation mode expresses numbers in two parts. The significant digits display with one digit to the left of the decimal. The appropriate power of 10 displays to the right of **E**, as in **1.234567E4**.

Eng (engineering) notation mode is similar to scientific notation. However, the number can have one, two, or three digits before the decimal; and the power-of-10 exponent is a multiple of three, as in **12.34567E3**.

Note: If you select **Normal** notation, but the answer cannot display in 10 digits (or the absolute value is less than .001), the TI-84 Plus C expresses the answer in scientific notation.

FLOAT, 0 1 2 3 4 5 6 7 8 9

Float (floating) decimal mode displays up to 10 digits, plus the sign and decimal.

FIX 0123456789 decimal mode specifies the number of digits (0 through 9) to display to the right of the decimal for decimal answers.

The decimal setting applies to **Normal**, **Sci**, and **Eng** notation modes.

The decimal setting applies to these numbers, with respect to the **Answer** mode setting:

- An answer displayed on the home screen
- Coordinates on a graph (Chapters 3, 4, 5, and 6 in the guidebook)
- The **Tangent**(DRAW instruction equation of the line, x , and **dy/dx** values (Chapter 8 in the guidebook)
- Results of CALCULATE operations (Chapters 3, 4, 5, and 6 in the guidebook)
- The regression equation stored after the execution of a regression model (Chapter 12 in the guidebook)

RADIAN, DEGREE

Angle modes control how the TI-84 Plus C interprets angle values in trigonometric functions and polar/rectangular conversions.

Radian mode interprets angle values as radians. Answers display in radians.

Degree mode interprets angle values as degrees. Answers display in degrees.

FUNCTION, PARAMETRIC, POLAR, SEQ

Graphing modes define the graphing parameters. Chapters 3, 4, 5, and 6 in the guidebook describe these modes in detail.

Func (function) graphing mode plots functions, where Y is a function of X (Chapter 3).

Par (parametric) graphing mode plots relations, where X and Y are functions of T (Chapter 4).

Pol (polar) graphing mode plots functions, where r is a function of θ (Chapter 5).

Seq (sequence) graphing mode plots sequences (Chapter 6).

THICK, DOT-THICK, THIN, DOT-THIN

THICK plotting mode is a quick way to reset all $Y=$ line styles to a thick line connecting each point calculated for the selected functions. You can change individual line styles in the $Y=$ editor.

Note: The THICK plotting mode on the TI-84 Plus C is equivalent to the CONNECTED plotting mode on the TI-84 Plus graphing calculator.

DOT-THICK plotting mode is a quick way to reset all $Y=$ line styles to a large dot and plots only the calculated points of the selected functions. You can change individual line styles in the $Y=$ editor.

Note: The DOT-THICK plotting mode on the TI-84 Plus C is equivalent to the DOT plotting mode on the TI-84 Plus graphing calculator. You can change individual line styles in the $Y=$ editor.

THIN plotting mode is a quick way to reset all $Y=$ line styles to a thin line connecting each point calculated for the selected functions.

Note: Use THIN plotting mode for function graphing when looking at any functions which asymptote to an axis.

DOT-THIN plotting mode is a quick way to reset all $Y=$ line styles to a small dot and plots only the calculated points of the selected functions. You can change individual line styles in the $Y=$ editor.

SEQUENTIAL, SIMUL

Sequential graphing-order mode evaluates and plots one function completely before the next function is evaluated and plotted.

Simul (simultaneous) graphing-order mode evaluates and plots all selected functions for a single value of X and then evaluates and plots them for the next value of X.

Note: Regardless of which graphing mode is selected, the TI-84 Plus C will sequentially graph all stat plots before it graphs any functions.

REAL, $a+bi$, $re^{(\theta i)}$

Real mode does not display complex results unless complex numbers are entered as input.

Two complex modes display complex results.

- **$a+bi$** (rectangular complex mode) displays complex numbers in the form $a+bi$.
- **$re^{(\theta i)}$** (polar complex mode) displays complex numbers in the form $re^{(\theta i)}$.

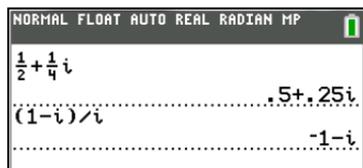
Note: When you use the n/d template, both n and d must be real

numbers. For example, you can enter $\frac{1}{2} + \frac{1}{4}i$ (the answer is displayed as

a decimal value) but if you enter $\frac{(1-i)}{i}$, a data type error displays. To

perform division with a complex number in the numerator or denominator, use regular division instead of the n/d template.

See the complete guidebook for complete details on complex numbers and how the TI-84 Plus C functions work with complex number entries.



FULL, HORIZONTAL, GRAPH-TABLE

Full screen mode uses the entire screen to display a graph or edit screen.

Each split-screen mode displays two screens simultaneously.

- **Horiz** (horizontal) mode displays the current graph on the top half of the screen; it displays the home screen or an editor on the bottom half (Chapter 9 in the guidebook).
- **G-T** (graph-table) mode displays the current graph on the left half of the screen; it displays the table screen on the right half (Chapter 9 in the guidebook).

FRACTION TYPE: n/d, Un/d

n/d displays results as a simple fraction. Fractions may contain a maximum of six digits in the numerator; the value of the denominator may not exceed 9999.

Un/d displays results as a mixed number, if applicable. **U**, **n**, and **d** must all be integers. If **U** is a non-integer, the result may be converted **U * n/d**. If **n** or **d** is a non-integer, a syntax error is displayed. The whole number, numerator, and denominator may each contain a maximum of three digits.

Note: To perform division with a complex number in the numerator or denominator, use regular division instead of the n/d template.

ANSWERS: AUTO, DEC, FRAC-APPROX

Auto displays answers in a similar format as the input. For example, if a fraction is entered in an expression, the answer will be in fraction form, if possible. If a decimal appears in the expression, the output will be a decimal number.

Dec displays answers as integers or decimal numbers.

Frac-Approx attempts a fraction conversion using the number of decimals carried by the graphing calculator. A fraction answer may be exact or approximate for any real number result.

Note: The **Answers** mode setting also affects how values in sequences, lists, and tables are displayed. Choose **Dec** or **Frac** to ensure that values are displayed in either decimal or fraction form. You can also convert values from decimal to fraction or fraction to decimal using the **FRAC** shortcut menu or the **MATH** menu.

GOTO 2ND FORMAT GRAPH: NO, YES

No does not display the FORMAT graph screen, but can always be accessed by pressing $\boxed{2\text{nd}} \boxed{[FORMAT]}$.

Yes leaves the mode screen and displays the FORMAT graph screen when you press \boxed{ENTER} so that you can change the graph format settings. To return to the mode screen, press \boxed{MODE} .

STAT DIAGNOSTICS: OFF, ON

Off displays a statistical regression calculation *without* the correlation coefficient (r) or the coefficient of determination (r^2).

On displays a statistical regression calculation *with* the correlation coefficient (r), and the coefficient of determination (r^2), as appropriate.

STAT WIZARDS: ON OFF

On: Selection of menu items in MATH PROB, STAT CALC, DISTR DISTR, DISTR DRAW and seq(in LIST OPS displays a screen which provides syntax help (wizard) for the entry of required and optional arguments into the command or function. The function or command will paste the entered arguments to the Home Screen history or to most other locations where the cursor is available for input. Some calculations will compute directly from the wizard. If a command or function is accessed from [CATALOG] the command or function will paste without wizard support. Use Catalog Help for more syntax help when needed. To use Catalog Help, select a menu item and then press $\boxed{+}$.

Off: The function or command will paste to the cursor location with no syntax help (wizard)

SET CLOCK

Use the clock to set the time, date, and clock display formats.

Using the Clock

Use the clock to set the time and date, select the clock display format, and turn the clock on and off. The clock is turned on by default and is accessed from the mode screen.

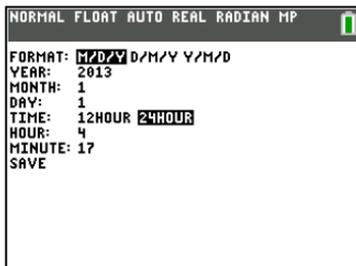
Displaying the Clock Settings

1. Press $\boxed{\text{MODE}}$.
2. Press $\boxed{\leftarrow}$ $\boxed{\rightarrow}$ to move the cursor to **SET CLOCK**.
3. Press $\boxed{\text{ENTER}}$.



Changing the Clock Settings

1. Press \rightarrow or \leftarrow to highlight each field.
 - Press ENTER to select the date and time format.
 - Press CLEAR and type a number for the year, month, date, hour, and minute fields.
2. To save changes, press \downarrow to highlight **SAVE**, and then press ENTER .



Turning the Clock On and Off

1. Press 2nd [CATALOG].
2. Press \downarrow or \uparrow to scroll the **CATALOG** until the selection cursor points to **ClockOff** or **ClockOn**.
3. Press ENTER ENTER .



Equation Operating System (EOS™)

Order of Evaluation

The Equation Operating System (EOS™) defines the order in which functions in expressions are entered and evaluated on the TI-84 Plus C. EOS™ lets you enter numbers and functions in a simple, straightforward sequence.

EOS™ evaluates the functions in an expression in this order.

Order Number	Function
1	Functions that precede the argument, such as $\sqrt{}$, sin(, or log(
2	Functions that are entered after the argument, such as $^{}$, $^{-1}$, $!$, $^{\circ}$, r , and conversions

Order Number	Function
3	Powers and roots, such as 2^5 or $5^x \sqrt{32}$
4	Permutations (nPr) and combinations (nCr)
5	Multiplication, implied multiplication, and division
6	Addition and subtraction
7	Relational functions, such as $>$ or \leq
8	Logic operator and
9	Logic operators or and xor

Note: Within a priority level, EOS™ evaluates functions from left to right. Calculations within parentheses are evaluated first.

Implied Multiplication

The TI-84 Plus C recognizes implied multiplication, so you need not press \square to express multiplication in all cases. For example, the TI-84 Plus C interprets 2π , $4\sin(46)$, $5(1+2)$, and $(2*5)7$ as implied multiplication.

Note: TI-84 Plus C implied multiplication rules differ from those of some other graphing calculators. For example, the TI-84 Plus C evaluates $1/2X$ as $(1/2)*X$, while some graphing calculators may evaluate $1/2X$ as $1/(2*X)$ (Chapter 2 in the guidebook).

Parentheses

All calculations inside a pair of parentheses are completed first. For example, in the expression $4(1+2)$, EOS™ first evaluates the portion inside the parentheses, $1+2$, and then multiplies the answer, 3, by 4.

Expression	Result
$4*12$	48
$4(1+2)$	12

Negation

To enter a negative number, use the negation key. Press \square and then enter the number. On the TI-84 Plus C, negation is in the third level in the EOS™ hierarchy. Functions in the first level, such as squaring, are evaluated before negation.

Most TI-84 Plus C functions and operations are symbols comprising several characters. You must enter the symbol from the keyboard or a menu; do not spell it out. For example, to calculate the log of 45, you must press **LOG** 45. Do not enter the letters **L**, **O**, and **G**. If you enter **LOG**, the TI-84 Plus C interprets the entry as implied multiplication of the variables **L**, **O**, and **G**.

Note: In MathPrint™ mode, press \square to get out of the MathPrint™ template and continue entering the expression.

Calculate $3.76 \div (-7.9 + \sqrt{5}) + 2 \log 45$.

MathPrint™

3 \square 76 \div ((\square) 7 \square 9 +
 2nd [√] 5 \square)) + 2 LOG 45)
 ENTER

NORMAL FLOAT AUTO REAL RADIAN MP \square
 $3.76 / (-7.9 + \sqrt{5}) + 2 \log(45)$

 2.642575252

Classic

3 \square 76 \div ((\square) 7 \square 9 +
 2nd [√] 5)) + 2 LOG 45)
 ENTER

NORMAL FLOAT AUTO REAL RADIAN CL \square
 $3.76 / (-7.9 + \sqrt{5}) + 2 \log(45)$

 2.642575252

Multiple Entries on a Line

To enter two or more expressions or instructions on a line, separate them with colons (ALPHA [:]). All instructions are stored together in last entry (ENTRY).

NORMAL FLOAT AUTO REAL RADIAN MP \square
 5→A:2→B:A/B

 2.5

Entering a Number in Scientific Notation

1. Enter the part of the number that precedes the exponent. This value can be an expression.
2. Press 2nd [EE]. E is pasted to the cursor location.
3. Enter the exponent, which can be one or two digits.

Note: If the exponent is negative, press (-), and then enter the exponent.

NORMAL FLOAT AUTO REAL RADIAN MP \square
 123.45E-2

 1.2345

When you enter a number in scientific notation, the TI-84 Plus C does not automatically display answers in scientific or engineering notation. The mode settings and the size of the number determine the display format.

Functions

A function returns a value. For example, \div , $-$, $+$, $\sqrt{\quad}$, and **log(** are the functions in the example on the previous page. In general, the first letter of each function is lowercase. Most functions take at least one argument, as indicated by an open parenthesis following the name. For example, **sin(** requires one argument, **sin(value)**.

Note: The Catalog Help contains syntax information for most of the functions in the catalog. To use Catalog Help, select a menu item and then press $\boxed{+}$.

Instructions

An instruction initiates an action. For example, **ClrDraw** is an instruction that clears any drawn elements from a graph. Instructions cannot be used in expressions. In general, the first letter of each instruction name is uppercase. Some instructions take more than one argument, as indicated by an open parenthesis at the end of the name. For example, on the TI-84 Plus C, **Circle(** requires three arguments, and has two optional arguments: **Circle(X,Y,radius[,color; linestyle])**.

Interrupting a Calculation

To interrupt a calculation or graph in progress, which is indicated by the busy indicator in the status bar, press \boxed{ON} .

When you interrupt a calculation, a menu is displayed.

- To return to the home screen, select **1:Quit**.
- To go to the location of the interruption, select **2:Goto**.

When you interrupt a graph, a partial graph is displayed.

- To return to the home screen, press \boxed{CLEAR} or any non-graphing key.
- To restart graphing, press a graphing key or select a graphing instruction.

TI-84 Plus C Edit Keys

Keystrokes	Result
$\boxed{\rightarrow}$ or $\boxed{\leftarrow}$	Moves the cursor within an expression; these keys repeat.

Keystrokes	Result
\uparrow or \downarrow	Moves the cursor from line to line within an expression that occupies more than one line; these keys repeat. Moves the cursor from term to term within an expression in MathPrint™ mode; these keys repeat. On the home screen, scrolls through the history of entries and answers.
2^{nd} \leftarrow	Moves the cursor to the beginning of an expression.
2^{nd} \rightarrow	Moves the cursor to the end of an expression.
\boxed{ALPHA} \uparrow	On the home screen, moves the cursor out of a MathPrint™ expression and up into history. In the Y=editor, moves the cursor from a MathPrint™ expression to the previous Y-var.
\boxed{ALPHA} \downarrow	In the Y=editor, moves the cursor from a MathPrint™ expression to the next Y-var.
\boxed{ENTER}	Evaluates an expression or executes an instruction.
\boxed{CLEAR}	On a line with text on the home screen, clears the current line. On a blank line on the home screen, clears everything on the home screen. In an editor, clears the expression or value where the cursor is located; it does not store a zero.
\boxed{DEL}	Deletes a character at the cursor; this key repeats.
2^{nd} $\boxed{[INS]}$	Changes the cursor to an underline (<u> </u>); inserts characters in front of the underline cursor; to end insertion, press 2^{nd} $\boxed{[INS]}$ or press \leftarrow , \uparrow , \rightarrow , or \downarrow .
2^{nd}	Changes the cursor or status bar indicator to I ; the next keystroke performs a 2nd function (displayed above a key and to the left); to cancel 2nd , press 2^{nd} again.
\boxed{ALPHA}	Changes the cursor or status bar indicator to II ; the next keystroke performs a third function of that key (displayed above a key and to the right) or accesses a shortcut menu. To cancel \boxed{ALPHA} , press \boxed{ALPHA} or press \leftarrow , \uparrow , \rightarrow , or \downarrow .

Keystrokes	Result
2nd [A-LOCK]	Changes the cursor to  ; sets alpha-lock; subsequent keystrokes access the third functions of the keys pressed; to cancel alpha-lock, press [ALPHA]. If you are prompted to enter a name such as for a group or a program, alpha-lock is set automatically. Note: The TI-84 Plus C does not automatically set alpha-lock for entries that require list names.
X,T,θ,n	Pastes an X in Func mode, a T in Par mode, a θ in Pol mode, or an n in Seq mode with one keystroke.

Pictures and Backgrounds

The TI-84 Plus C uses both pictures and background images. They are both stored in Flash archive, but they are used in different ways:

- Image Vars (Image1 - Image9, and Image0) are variables stored in archive memory. An Image Var is used as a Background Image in the graph area. Several images are pre-loaded on the TI-84 Plus C. You can also convert images to TI-84 Plus C Image Vars in the TI Connect™ software and load them to the calculator. You cannot create images on the calculator.
Note: TI Connect™ software is available as a free download from education.ti.com/go/download.
- Pic Vars (Pic1 - Pic 9, and Pic0) are also variables stored in archive memory. Pic Vars can be creating by drawing in the graphing area, and the changes saved and recalled to the graphing area. Saving a Pic Var will not include the Background Image behind your graphing area.
- Both Image Vars and Pic Vars are stored and run in Flash archive, not in RAM. They are both accessible in the VARS menu.
- Image Vars and Pic Vars can only be shared with another TI-84 Plus C graphing calculator.
- TI-84 Plus Pic Vars cannot be shared between the TI-84 Plus and the TI-84 Plus C graphing calculators.
- If you perform a RAM reset on the TI-84 Plus C, the Image Vars and Pic Vars remain in Archive memory for use.
- TI-84 Plus pictures are stored in RAM or archive, while TI-84 Plus C pictures are stored only in archive.

Using Variable Names

Variables and Defined Items

You can enter and use several types of data, including real and complex numbers, matrices, lists, functions, stat plots, graph databases, graph pictures, and strings.

The TI-84 Plus C uses assigned names for variables and other items saved in memory. For lists, you also can create your own five-character names.

Variable Type	Names
Real numbers (including fractions)	A, B, ... , Z, θ
Complex numbers	A, B, ... , Z, θ
Matrices	[A], [B], [C], ... , [J]
Lists	L1, L2, L3, L4, L5, L6 , and user-defined names
Functions	Y1, Y2, ... , Y9, Y0
Parametric equations	X1T and Y1T, ... , X6T and Y6T
Polar functions	r1, r2, r3, r4, r5, r6
Sequence functions	u, v, w
Stat plots	Plot1, Plot2, Plot3
Graph databases	GDB1, GDB2, ... , GDB9, GDB0
Background images	Image1, Image2, ... , Image9, Image0
Pictures	Pic1, Pic2, ... , Pic9, Pic0
Strings	Str1, Str2, ... , Str9, Str0
Apps	Applications
AppVars	Application variables
Groups	Grouped variables
System variables	Xmin, Xmax , and others

Notes about Variables

- You can create as many list names as memory will allow (Chapter 11 in the guidebook).
- Programs have user-defined names and share memory with variables (Chapter 16 in the guidebook).

- From the home screen or from a program, you can store to matrices (Chapter 10), lists (Chapter 11), strings (Chapter 15), system variables such as **Xmax** (Chapter 1), **TblStart** (Chapter 7), and all **Y=** functions (Chapters 3, 4, 5, and 6 in the guidebook).
- From an editor, you can store to matrices, lists, and **Y=** functions (Chapter 3 in the guidebook).
- From the home screen, a program, or an editor, you can store a value to a matrix element or a list element.
- You can use **DRAW STO** menu items to store and recall Pic Vars (Chapter 8 in the guidebook).
- Although most variables can be archived, system variables including r , T , X , Y , and θ cannot be archived (Chapter 18 in the guidebook).
- **Apps** are independent applications, which are stored in Flash archive. **AppVars** is a variable holder used to store variables created by independent applications. You cannot edit or change variables in **AppVars** unless you do so through the application which created them.

Storing Variable Values

Storing Values in a Variable

Values are stored to and recalled from memory using variable names. When an expression containing the name of a variable is evaluated, the value of the variable at that time is used.

To store a value to a variable from the home screen or a program using the **STO** key, begin on a blank line and follow these steps.

1. Enter the value you want to store. The value can be an expression.
2. Press **STO**. \rightarrow is copied to the cursor location.
3. Press **ALPHA** and then the letter of the variable to which you want to store the value.
4. Press **ENTER**. If you entered an expression, it is evaluated. The value is stored to the variable.



Displaying a Variable Value

To display the value of a variable, enter the name on a blank line on the home screen, and then press **ENTER**.



Archiving Variables (Archive, Unarchive)

You can archive data, programs, or other variables in a section of memory called user data archive where they cannot be edited or deleted inadvertently. These archived variables are indicated by asterisks (*) to the left of the variable names. These archived variables cannot be edited or executed. They can only be seen and unarchived. For example, if you archive list L1, you will see that L1 exists in memory but if you select it and paste the name L1 to the home screen, you won't be able to see its contents or edit it until it is unarchived.

Note: Image Vars are run and stored in archive, but when Image Vars are displayed in the VARS 4:Picture & Background, the BACKGROUND menu does not display the asterisk *.

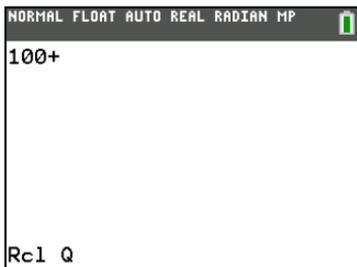
Recalling Variable Values

Using Recall (RCL)

To recall and copy variable contents to the current cursor location, follow these steps. To leave **RCL**, press **CLEAR**.

1. Press **2nd** **[RCL]**. **RCL** and the edit cursor are displayed on the bottom line of the screen.
2. Enter the name of the variable in one of five ways.
 - Press **[ALPHA]** and then the letter of the variable.
 - Press **2nd** **[LIST]**, and then select the name of the list, or press **2nd** **[L1]** or **[L2]**, and so forth.
 - Press **2nd** **[MATRIX]**, and then select the name of the matrix.
 - Press **[VARS]** to display the **VARS** menu or **[VARS]** **[▾]** to display the **VARS Y-VARS** menu; then select the type and then the name of the variable or function.
 - Press **[ALPHA]** **[F4]** to display the YVAR shortcut menu, then select the name of the function.
 - Press **[PRGM]** **[◀]**, and then select the name of the program (in the program editor only).

The variable name you selected is displayed on the bottom line and the cursor disappears.



3. Press **ENTER**. The variable contents are inserted where the cursor was located before you began these steps.



Note: You can edit the characters pasted to the expression without affecting the value in memory.

QuickPlot and Fit Equation

QuickPlot and Fit Equation allows you to drop points on a graph screen and model a curve to those points using regression functions. You can select color and line style, draw points on a graph, and choose an equation to fit the drawn points. You can then store the results of the plot and equation. For details, refer to Chapter 12 in the guidebook.

QuickPlot and Fit Equation is an option in the **[STAT]** **[CALC]** menu.

Prior to starting the QuickPlot and Fit Equation interactive feature on the graph area, be sure to set your Background Image Var and other graph settings from the **FORMAT** screen. Also set your **WINDOW** or **ZOOM** settings.

 A TI-84 Plus calculator screen in the QuickPlot mode. The top line shows 'NORMAL FLOAT AUTO REAL RADIAN MP'. The second line shows the regression equation: $Re9EQ = -.4943X^2 + 2.3827X + 3.6144$. The screen displays a background image of a fountain with a blue parabola fitted to several data points. The bottom of the screen shows 'STORE RESULTS?' and a 'STORE' button.

Drop points on the screen. Points can be saved to lists.

Calculate the regression equation, draw the curve, and store the function.

ENTRY (Last Entry) Storage Area

Using ENTRY (Last Entry)

When you press $\boxed{\text{ENTER}}$ on the home screen to evaluate an expression or execute an instruction, the expression or instruction is placed in a storage area called ENTRY (last entry). When you turn off the TI-84 Plus C, ENTRY is retained in memory.

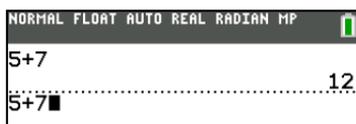
To recall ENTRY, press $\boxed{2\text{nd}} \boxed{\text{ENTRY}}$. The last entry is pasted to the current cursor location, where you can edit and execute it. On the home screen or in an editor, the current line is cleared and the last entry is pasted to the line.

Because the TI-84 Plus C updates ENTRY only when you press $\boxed{\text{ENTER}}$, you can recall the previous entry even if you have begun to enter the next expression.

5 $\boxed{+}$ 7

$\boxed{\text{ENTER}}$

$\boxed{2\text{nd}} \boxed{\text{ENTRY}}$



Note: You can also scroll up through previous entries and answers on the home screen, even if you have cleared the screen. When you find an entry or answer that you want to use, you can select it and paste it (press $\boxed{\text{ENTER}}$) on the current entry line. List and matrix answers cannot be copied and pasted to the new entry line.

For more information on copying and pasting previous entries, see *Scrolling Through Previous Entries on the Home Screen* earlier in this chapter.

Clearing ENTRY

Clear Entries (Chapter 18 in the guidebook) clears all data that the TI-84 Plus C is holding in the **ENTRY** storage area, and clears the home screen history.

Using Ans in an Expression

When an expression is evaluated successfully from the home screen or from a program, the TI-84 Plus C stores the answer to a storage area called **Ans** (last answer). **Ans** may be a real or complex number, a list, a matrix, or a string. When you turn off the TI-84 Plus C, the value in **Ans** is retained in memory.

You can use the variable **Ans** to represent the last answer in most places. Press $\boxed{2\text{nd}} \boxed{[\text{ANS}]}$ to copy the variable name **Ans** to the cursor location. When the expression is evaluated, the TI-84 Plus C uses the value of **Ans** in the calculation.

Calculate the area of a garden plot 1.7 meters by 4.2 meters. Then calculate the yield per square meter if the plot produces a total of 147 tomatoes.

1.7×4.2
 $\boxed{\text{ENTER}}$
147 $\boxed{\div}$ $\boxed{2\text{nd}} \boxed{[\text{ANS}]}$
 $\boxed{\text{ENTER}}$

NORMAL FLOAT AUTO REAL RADIAN MP	
1.7×4.2	7.14
$147 \div \text{Ans}$	20.58823529

Continuing an Expression

You can use **Ans** as the first entry in the next expression without entering the value again or pressing $\boxed{2\text{nd}} \boxed{[\text{ANS}]}$. On a blank line on the home screen, enter the function. The TI-84 Plus C pastes the variable name **Ans** to the screen, then the function.

$5 \div 2$
 $\boxed{\text{ENTER}}$
 $\times 9.9$
 $\boxed{\text{ENTER}}$

NORMAL FLOAT AUTO REAL RADIAN MP	
$5 \div 2$	
$\text{Ans} \times 9.9$	24.75

Storing Answers

To store an answer, store **Ans** to a variable before you evaluate another expression.

Note: nPr, nCr, and xth root do not pull **Ans** into the MathPrint™ template.

Calculate the area of a circle of radius 5 meters. Next, calculate the volume of a cylinder of radius 5 meters and height 3.3 meters, and then store the result in the variable V.

$\boxed{2\text{nd}} \boxed{[\pi]} 5 \boxed{x^2}$
 $\boxed{\text{ENTER}}$
 $\times 3.3$
 $\boxed{\text{ENTER}}$
 $\boxed{\text{STO}} \boxed{\text{ALPHA}} \boxed{\text{V}}$
 $\boxed{\text{ENTER}}$

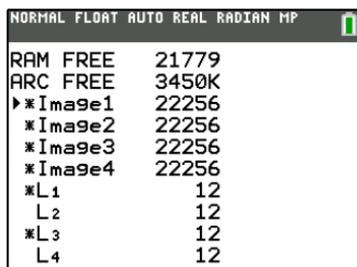
NORMAL FLOAT AUTO REAL RADIAN MP	
$\pi 5^2$	78.53981634
$\text{Ans} \times 3.3$	259.1813939
$\text{Ans} \rightarrow \text{V}$	259.1813939

Menus

Using Menus

You can access most TI-84 Plus C operations using menus. When you press a key or key combination to display a menu, one or more menu names appear on the top line of the screen.

- The menu name on the left side of the top line is highlighted. Up to nine items in that menu are displayed, beginning with item 1, which also is highlighted.
- A number or letter identifies each menu item's place in the menu. The order is 1 through 9, then 0, then A, B, C, and so on, if appropriate.
- When the menu continues beyond the displayed items, a down arrow (↓) replaces the colon next to the last displayed item.
- When a menu item ends in an ellipsis (...), the item displays a secondary menu or editor when you select it.
- When an asterisk (*) appears to the left of a menu item, that item is stored in user data archive (Chapter 18 in the guidebook).

A screenshot of the TI-84 Plus C menu system. The top line shows the menu name 'NORMAL' highlighted in white on a black background, followed by other menu options: 'FLOAT', 'AUTO', 'REAL', 'RADIAN', and 'MP'. A small green icon is visible on the right side of the top line. Below the top line, the following items are listed:

RAM FREE	21779
ARC FREE	3450K
▶*Image1	22256
*Image2	22256
*Image3	22256
*Image4	22256
*L1	12
L2	12
*L3	12
L4	12

Displaying a Menu

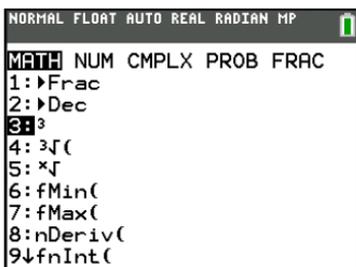
While using your TI-84 Plus C, you often will need to access items from its menus.



When you press a key that displays a menu, that menu temporarily replaces the screen where you are working. For example, when you press **MATH**, the **MATH** menu is displayed as a full screen.

Note: If a context help message is in the status bar when you press a menu which temporarily replaces the screen, that context help will remain in the status bar as a reminder that you are working within a context.

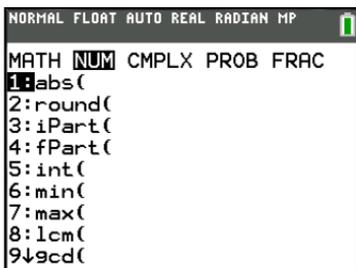
After you select an item from a menu, the screen where you are working usually is displayed again.



Moving from One Menu to Another

Some keys access more than one menu. When you press such a key, the names of all accessible menus are displayed on the top line. When you highlight a menu name, the items in that menu are displayed. Press **▶** and **◀** to highlight each menu name.

Note: FRAC shortcut menu items are found in the FRAC menu, and are also found on the MATH NUM menu. FUNC shortcut menu items are also found on the MATH MATH menu.



Scrolling a Menu

To scroll down the menu items, press **▼**. To scroll up the menu items, press **▲**.

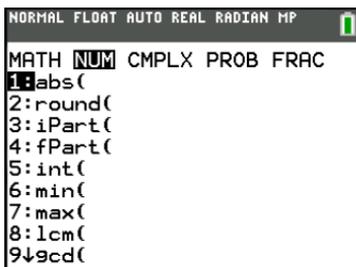
To page down six menu items at a time, press **ALPHA ▼**. To page up six menu items at a time, press **ALPHA ▲**.

To go to the last menu item directly from the first menu item, press **▲**. To go to the first menu item directly from the last menu item, press **▼**.

Selecting an Item from a Menu

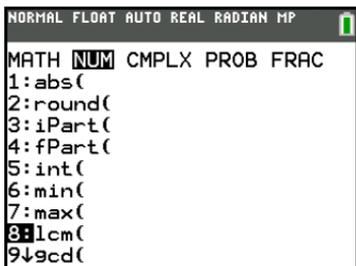
You can select an item from a menu in three ways.

- Press the number or letter of the item you want to select. The cursor can be anywhere on the menu, and the item you select does not need to be displayed on the screen.

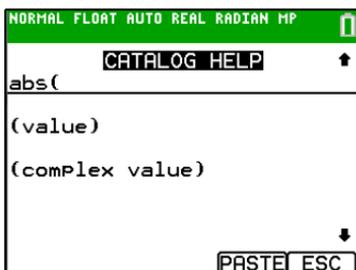


- Press \leftarrow or \rightarrow to move the cursor to the item you want, and then press ENTER .

After you select an item from a menu, the TI-84 Plus C typically displays the previous screen.



- Move the cursor to the item you want, and then press + . For most commands, the Catalog Help syntax editor displays the correct syntax. Enter the syntax using the displayed help, and then press ALPHA [F4] to paste. The Catalog Help pastes the complete command.



Press ALPHA [F5] to escape without pasting the command.

Note: On the **LIST NAMES**, **PRGM EXEC**, and **PRGM EDIT** menus, only items 1 through 9 and 0 are labeled in such a way that you can select them by pressing the appropriate number key. To move the cursor to the first item beginning with any alpha character or θ , press the key combination for that alpha character or θ . If no items begin with that character, the cursor moves beyond it to the next item.

Leaving a Menu without Making a Selection

You can leave a menu without making a selection in any of four ways.

- Press **[2nd]** **[QUIT]** to return to the home screen.
- Press **[CLEAR]** to return to the previous screen.
- Press a key or key combination for a different menu, such as **[MATH]** or **[2nd]** **[LIST]**.
- Press a key or key combination for a different screen, such as **[Y=]** or **[2nd]** **[TABLE]**.

VARs Menus

VARs Menu

You can enter the names of functions and system variables in an expression or store to them directly.

To display the **VARs** menu, press **[VARs]**. All **VARs** menu items display secondary menus, which show the names of the system variables.

1:Window, **2:Zoom**, **4:Picture&Background**, and **5:Statistics** each access more than one secondary menu.

VARs Y-VARS COLOR

1:Window...	X/Y , T/θ , and U/V/W variables
2:Zoom...	ZX/ZY , ZT/Zθ , and ZU variables
3:GDB...	Graph database variables
4:Picture & Background...	Picture and Background (image) variables
5:Statistics...	XY , Σ , EQ , TEST , and PTS variables
6:Table...	TABLE variables
7:String...	String variables

Selecting a Variable from the VARs Menu or VARs Y-VARS Menu

To display the **VARs Y-VARS** menu, press **[VARs]** **[Y=]**. **1:Function**, **2:Parametric**, and **3:Polar** display secondary menus of the **Y=** function variables.

VARs Y-VARS COLOR

1: Function...	Y_n functions
2: Parametric...	X_nT , Y_nT functions, also found on the YVARS shortcut menu
3: Polar...	r_n functions, also found on the YVARS shortcut menu
4: On/Off...	Lets you select/deselect functions

Note:

- The sequence variables (**u**, **v**, **w**) are located on the keyboard as the second functions of **7**, **8**, and **9**.
- These Y= function variables are also on the **YVAR** shortcut menu.

To select a variable from the **VAR** menus, follow these steps.

1. Display the **VAR** or **VAR Y-VARS** menu.
 - Press **VAR** to display the **VAR** menu.
 - Press **VAR** **▾** to display the **VAR Y-VARS** menu.
2. Select the type of variable, such as **2:Zoom** from the **VAR** menu or **3:Polr** from the **VAR Y-VARS** menu. A secondary menu is displayed.
3. Press **▾** or **▸** to display other secondary menus.
4. Select a variable name from the menu.
It is pasted to the cursor location.

Selecting an argument from the VAR COLOR Menu

To display the **VAR COLOR** menu, press **VAR** **▾** **▾**.

VAR Y-VARS COLOR

- 1: BLUE
 - 2: RED
 - 3: BLACK
 - 4: MAGENTA
 - 5: GREEN
 - 6: ORANGE
 - 7: BROWN
 - 8: NAVY
 - 9: LTBLUE
 - 0: YELLOW
 - A: WHITE
 - B: LTGRAY
 - C: MEDGRAY
 - D: GRAY
 - E: DARKGRAY
-

To select an argument from the **VAR COLOR** menu, follow these steps.

1. Press **VAR** **▾** **▾** to display the **VAR COLOR** menu.

2. Select the color argument, such as **2:RED**.

It is pasted to the cursor location.

Note: Although the menu numbers for **COLOR** are 1-9, 0, A-E, colors are represented by the numbers 10-24 for selected programming commands.

Grouping files

Grouping lets you make a copy of two or more variables and store them in the Flash archive of the TI-84 Plus C. This function is similar to "zipping" a computer file and storing it. For example, suppose that you want to save data you collected for time, temperature, humidity, and barometric pressure because you may need to use the data for another assignment.

Grouping lets you keep these lists together for future use. Instead of trying to locate the correct lists and remember which ones were collected together, you can simply recall the group. Grouping also saves space on your calculator by copying variables from RAM to Flash archive.

Grouping using the GROUP feature on the graphing calculator is for sharing files in the classroom and on the web. TI Connect™ software for PC and TI Connect™ software for Mac each have a grouping file feature that is best for storing graphing calculator files on the computer. See the help file in the TI Connect™ software to understand more about the software groups files.

Note: Since Image Vars and Pic Vars reside in Flash archive, not RAM, you cannot group Image Vars and Pic Vars.

To group files:

1. Press **[2nd] [MEM] 8 1** to select **Create New** on the **GROUP UNGROUP** screen.
2. Type a group name and press **[ENTER]**.
3. Navigate to the files you want to group and select each file by moving the cursor to the file and pressing **[ENTER]**.
4. Press **[▶] 1** to select **Done**.

The files you selected are grouped.

To ungroup files:

1. Press **[2nd] [MEM] 8 [▶]** to select **UNGROUP**.
2. Move the cursor to the group name that you want to ungroup and press **[ENTER]**.
3. Press **3** to select **Overwrite All**.

The files in the selected group are ungrouped.

Special Features of the TI-84 Plus C

3.5 Megabytes of Available Memory

3.5 MB of available memory is built into the TI-84 Plus C Silver Edition. About 21 kilobytes (K) of RAM (random access memory) are available for you to compute and store functions, programs, and data.

About 3.5 M of user data archive allow you to store data, programs, applications, or any other variables to a safe location where they cannot be edited or deleted inadvertently. You can also free up RAM by archiving variables to user data. For details, refer to Chapter 18 in the guidebook.

Applications

Some applications are preloaded on your TI-84 Plus C, and others can be installed to customize the TI-84 Plus C to your needs. You can install applications and the TI Connect™ software at education.ti.com/go/download.

The 3.5 MB archive space lets you store up to 216 applications at one time on the TI-84 Plus C. Applications can also be stored on a computer for later use or linked unit-to-unit. For details, refer to Chapter 18 in the guidebook.

Archiving

You can store variables in the TI-84 Plus C user data archive, a protected area of memory separate from RAM. The user data archive lets you:

- Store data, programs, applications or any other variables to a safe location where they cannot be edited or deleted inadvertently.
- Create additional free RAM by archiving variables.

By archiving variables that do not need to be edited frequently, you can free up RAM for applications that may require additional memory. For details, refer to: Chapter 18 in the guidebook.

Other TI-84 Plus C Features

Graphing

You can store, graph in color, and analyze up to 10 functions, up to six parametric functions, up to six polar functions, and up to three sequences. You can use DRAW instructions to annotate graphs in color.

The graphing chapters appear in this order: Function, Parametric, Polar, Sequence, and DRAW. For graphing details, refer to Chapters 3, 4, 5, 6, and 8 in the guidebook.

Sequences

You can generate sequences and graph them over time. Or, you can graph them as web plots or as phase plots. For details, refer to Chapter 6 in the guidebook.

Tables

You can create function evaluation tables to analyze many functions simultaneously. For details, refer to Chapter 7 in the guidebook.

Split Screen

You can split the screen horizontally to display both a graph and a related editor (such as the $Y=$ editor), the table, the stat list editor, or the home screen. Also, you can split the screen vertically to display a graph and its table simultaneously. For details, refer to Chapter 9 in the guidebook.

Matrices

You can enter and save up to 10 matrices and perform standard matrix operations on them. For details, refer to Chapter 10 in the guidebook.

Lists

You can enter and save as many lists as memory allows for use in statistical analyses. You can attach formulas to lists for automatic computation. You can use lists to evaluate expressions at multiple values simultaneously and to graph a family of curves. For details, refer to Chapter 11 in the guidebook.

Statistics

You can perform one- and two-variable, list-based statistical analyses, including logistic and sine regression analysis. You can plot the data as a histogram, xyLine, scatter plot, modified or regular box-and-whisker plot, or normal probability plot. You can define and store up to three stat plot definitions. For details, refer to Chapter 12 in the guidebook.

Inferential Statistics

You can perform 16 hypothesis tests and confidence intervals and 15 distribution functions. You can display hypothesis test results graphically or numerically. For details, refer to Chapter 13 in the guidebook.

Applications

Press **[APPS]** to see the complete list of applications that came with your graphing calculator.

Visit education.ti.com/go/download for additional applications and guidebooks. For details, refer to Chapter 14 in the guidebook.

CATALOG

The CATALOG is a convenient, alphabetical list of all functions and instructions on the TI-84 Plus C. You can paste any function or instruction from the CATALOG to the current cursor location. For details, refer to Chapter 15 in the guidebook.

Catalog Help is built into the TI-84 Plus C operating system. The Catalog Help contains syntax information for most of the functions in the catalog. To use Catalog Help, select a menu item and then press **[\oplus]**.

Programming

You can enter and store programs that include extensive control and input/output instructions. For details, refer to Chapter 16 in the guidebook.

Communication Link

The TI-84 Plus C Silver Edition has a USB port using a USB unit-to-unit cable to connect and communicate with another TI-84 Plus C Silver Edition, TI-84 Plus Silver Edition, or TI-84 Plus. The TI-84 Plus C also has an I/O port using an I/O unit-to-unit cable to communicate with a TI-84 Plus C Silver Edition, TI-84 Plus Silver Edition, TI-84 Plus, TI-83 Plus Silver Edition, TI-83 Plus, TI-83, TI-82, TI-73, CBL 2™, or a CBR 2™ System.

With TI Connect™ software and a USB computer cable, you can also link the TI-84 Plus C to a personal computer. TI Connect™ software is available as a free download from education.ti.com/go/download.

As future software upgrades become available on the TI Web site, you can download the software to your PC and then use the TI Connect™ software and a USB computer cable to upgrade your TI-84 Plus C.

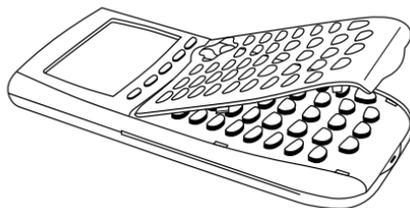
For details, refer to Chapter 19 in the guidebook.

Interchangeable Faceplates

The TI-84 Plus C Silver Edition has interchangeable faceplates that let you customize the appearance of your unit. To purchase additional faceplates, refer to the TI Online Store at education.ti.com.

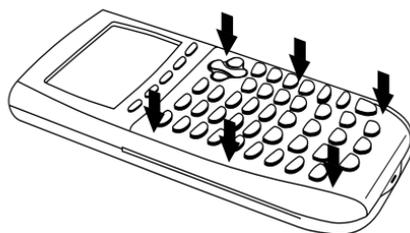
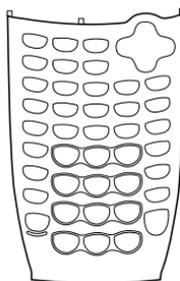
Removing a Faceplate

1. Lift the tab at the bottom edge of the faceplate away from the TI-84 Plus C Silver Edition case.
2. Carefully lift the faceplate away from the unit until it releases. Be careful not to damage the faceplate or the keyboard.



Installing New Faceplates

1. Align the top of the faceplate in the corresponding grooves of the TI-84 Plus C Silver Edition case.
2. Gently click the faceplate into place. Do not force.
3. Make sure you gently press each of the grooves to ensure the faceplate is installed properly. See the diagram for proper groove placement.



Battery Information

The TI-84 Plus C graphing calculator comes equipped with a Li-ion rechargeable battery. Like a cell phone or other similar device, charge the battery for at least four hours to ensure optimum performance. The graphing calculator also comes with a USB computer cable for transferring files to and from a computer and for charging the battery.

To check the status of the TI Rechargeable Battery in a TI-84 Plus C graphing calculator, turn it on. The battery status icon on the upper right of the screen gives information on the battery life.

NORMAL FLOAT AUTO REAL RADIAN MP

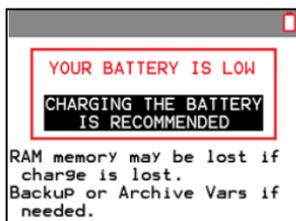


The battery icons indicate the level of battery power remaining, and indicate if the battery is charging.

Icon	Meaning
	Battery is 75% to 100% charged.
	Battery is 50% to 75% charged.
	Battery is 25% to 50% charged.
	Battery is 5% to 25% charged.
	Battery is charging.

Warning: RAM memory will be lost if the battery charge is lost. You should back up or archive your variables if your battery power gets low.

Displays this message when you turn on the unit.



Message A

Recharging the TI Rechargeable Battery

You should make sure the TI-84 Plus C battery is charged for classroom use and before exams.

Use one of the following options to charge the battery in the TI-84 Plus C graphing calculator:

- Connect the graphing calculator to a computer using a USB computer cable.
- Connect to a wall outlet using a TI wall adapter (may be sold separately).
- Place the graphing calculator in a TI-84 Plus C Charging Station.

The amount of time required to fully charge the battery may vary, but charging normally takes four to six hours. It is not necessary to remove the TI Rechargeable Battery from the graphing calculator to recharge it. The graphing calculator operates normally while it is attached to a charging source.

To recharge a graphing calculator from a computer, a TI USB driver must be installed. To download TI Connect™ or TI-SmartView™ software that includes a driver, go to education.ti.com/go/download.

When the TI Rechargeable Battery is fully charged, the graphing calculator draws power in the following order:

- First, from a connected external power source, such as:
 - A computer connected through a USB computer cable
 - A TI wall adapter (may be sold separately)
- Second, from the TI Rechargeable Battery

Replacing TI Rechargeable Batteries

Take these precautions when replacing rechargeable batteries:

- Use only the charger recommended for the battery, or the one that was provided with the original equipment.
- Remove the graphing calculator from the charger or alternating current adapter when not in use or being charged.
- Use of the battery in other devices may result in personal injury or damage to equipment or property.
- There is a risk of explosion if a battery is replaced by the wrong type.

Replacing the Battery

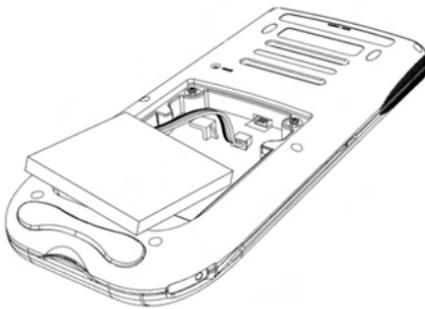
Use only the TI Rechargeable Battery to replace the TI-84 Plus C battery.

To replace the battery, follow these steps.

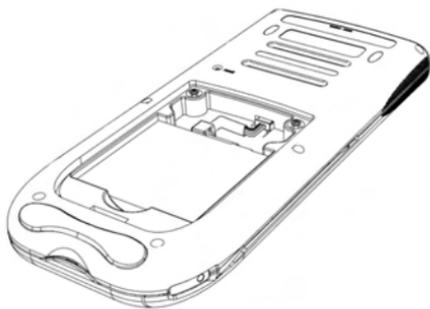
1. Use a small screwdriver to release the panel from the back of the handheld.



2. Remove the panel.
3. Remove the old battery.
4. Insert the white connector of the new battery into the jack located at the top of the battery compartment.



5. Thread the wire into the case to secure it. Insert the rechargeable battery into its compartment.



6. Replace the back panel and fasten the screws with a screwdriver.

Disposing of Used Batteries Safely and Properly

Do not mutilate, puncture, or dispose of batteries in fire. The batteries can burst or explode, releasing hazardous chemicals. Discard used batteries according to local regulations.

TI-84 Plus C Charging Station

The TI-84 Plus C Charging Station is used to charge the TI Rechargeable Battery in the TI-84 Plus C Silver Edition graphing calculator.

The charging station has 10 slots, and each slot can accommodate a TI-84 Plus C Silver Edition graphing calculator.

Note: It is not necessary to fill all the slots in the charging station to charge batteries.

The charging station is designed to be easy to use and easy to move when needed in a different classroom.

Indentations on each side of the charging stations enable you to lift a charging station using both hands. When you move a charging station to another location, always use two hands to lift the charging station.



When the charging station is empty, turn it over and you will notice the bottom is indented. If necessary to ensure the charging station sits flat on a surface, thread the cable through this space.

Place the charging station on a flat, stable surface such as a table. You can also use a wheeled cart if you need to move the charging station from classroom to classroom. When deciding on a location, it is important to consider proximity to a power source such as a power strip or wall outlet.

Preparing Charging Stations for Use

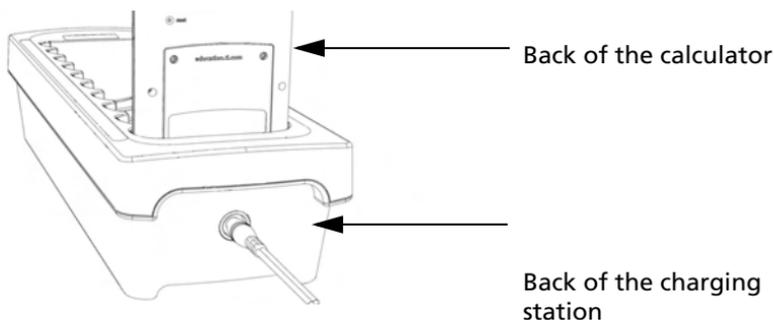
The TI-84 Plus C Charging Station is shipped with the following components in each package:

- A TI-84 Plus C Charging Station
 - An AC adapter
 - A regional power cord adapter
1. Insert the small end of the power adapter cord into the charging station's power jack.
 2. Plug the other end of the adapter into a power outlet.

Inserting Graphing Calculators into the Charging Station

The slots in the TI-84 Plus C Charging Station are designed to accommodate a graphing calculator without a slide case attached. The calculator will not fit in the slots if the slide case is attached.

The front of the calculator must face the front of the charging station. You may cause damage to the TI-84 Plus C graphing calculator if you try to force it into the charging station facing the wrong direction. When looking at the TI logo on the charging station, calculators are inserted into the slot with the keypad facing left.



1. Remove the slide case from the graphing calculator.
2. Align the grooves on the sides of the graphing calculator with the guides in the charging station slots. Ensure the calculator is facing the proper direction.
3. Gently push the graphing calculator into the slot. You will feel a slight resistance; continue pushing down until the graphing calculator is seated.

When the TI-84 Plus C graphing calculator is properly seated in a slot, the LED light on the side of the calculator turns amber to indicate it is charging.

Charging Batteries

The TI-84 Plus C Silver Edition graphing calculator uses a Li Ion TI Rechargeable Battery.

The charging process starts automatically when a graphing calculator is placed in a slot on a powered charging station. You can charge a classroom set of graphing calculators overnight.

Determining Battery Status

The LED light on each connected graphing calculator in the charging station provides basic information about the status of the rechargeable battery.

- When the light is amber, the battery is charging.
- When the light is green, the battery is fully charged.

Troubleshooting

If the recharge fails:

- Make sure the graphing calculator is seated properly in the slot. Batteries are not charged if the connector on the graphing calculator and the connector in the slot are not aligned.
- Check the connector on the graphing calculator to ensure that it is clean. If there is build-up on the graphing calculator's connector, you can remove it with a clean, dry cloth or a pencil eraser. Never use wet cloths or solutions of any kind.

Storing Charging Stations

Store the TI-84 Plus C Charging Station on a flat surface such as a table or a wheeled cart. You cannot damage the charging station by leaving it plugged in for extended periods of time. Also, you cannot damage the batteries by leaving them in the charging station beyond the time needed to fully charge them.

Transferring the OS from calculator to calculator

You can transfer the operating system from one calculator to another using a USB unit-to-unit cable or an I/O unit-to-unit cable (sold separately).

Note: You cannot transfer the OS or files using the TI-84 Plus C Charging Station. The TI-84 Plus C Charging Station only charges the TI-84 Plus C graphing calculators.

Connect the two calculators by firmly inserting either the USB or I/O cable ends into the calculators. The USB and I/O ports are located on the top edge of the calculator.

Receiving unit:

2nd **[LINK]** **▸** **[ENTER]**



When you press **[ENTER]**, the graphing calculator displays the message **Waiting...**



Sending unit:

2nd [LINK]

↑ **→** [ENTER]



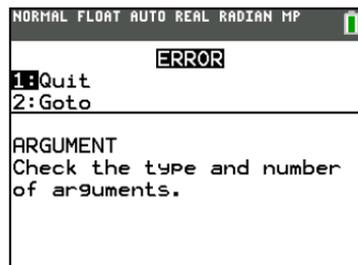
Error Conditions

Diagnosing an Error

The TI-84 Plus C detects errors while performing these tasks.

- Evaluating an expression
- Executing an instruction
- Plotting a graph
- Storing a value

When the TI-84 Plus C detects an error, it returns an error message with a short description. Appendix B describes each error type and possible reasons or hints about the most frequent ways an error occurs.



- If you select **1:Quit** (or press **2nd** [QUIT] or **CLEAR**), then the home screen is displayed.
- If you select **2:Goto**, then the previous screen is displayed with the cursor at or near the error location.

Note: If a syntax error occurs in the contents of a Y= function during program execution, then the **Goto** option returns to the Y= editor, not to the program.

Correcting an Error

To correct an error, follow these steps.

1. Note the error type (`ERROR:error type`).
2. Select **2:Goto**, if it is available. The previous screen is displayed with the cursor at or near the error location.
3. Determine the error. The error screens give helpful hints about what may have happened, but the errors are not always fully explained. If you cannot recognize the error, refer to Appendix B.
4. Correct the expression.

Linking Compatibility

The TI-84 Plus C has files and variables that may or may not be compatible with the TI-84 Plus family of graphing calculators. The table below is provided as a reference for what you can SEND and RECEIVE.

Note: Not all TI-84 Plus C graphing calculator files are compatible with other TI-84 Plus Family graphing calculator files because of the high resolution of the TI-84 Plus C color screen. In general, numeric files (not limited to lists, variables, matrices, and functions) are shared between these graphing calculators but Apps are not shared between these graphing calculators even if they have the same title. When not compatible, the computer file extensions for the TI-84 Plus C are different from a similar variable from the TI-84 Plus/TI-84 Plus Silver Edition graphing calculators.

File type	Link from TI-84 to TI-84 Plus C?	Link from TI-84 Plus C to TI-84?
Operating System	No	No
Apps	No	No
AppVar*	Yes	Yes
Programs - TI Basic*	Yes	Yes
Assembly Programs*	Yes	No
Pictures	No	No
Background Images	N/A	No
Group files	Yes	Yes
User Zoom	Yes	Yes

String	Yes	Yes
Table	Yes	Yes
Function file	Yes	Yes
GDB**	Yes	Yes
List	Yes	Yes
Matrix	Yes	Yes
Number	Yes	Yes
Complex	Yes	Yes
Window Setup	Yes	Yes
Certificate	No	No
Backup	No	No

* Programs created using commands available only in the latest OS version will not transfer to graphing calculators with an earlier OS version.

* App Vars and Programs should be reviewed for use after the transfer between the TI-84 Plus Family and TI-84 Plus C graphing calculators. Some App Vars may not set up an App as expected. Some Programs will need to be modified due to the difference in screen resolution and new commands.

** You may receive a version error if you used DOT-THIN line style. Change the line style to avoid the error.

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For information about the length and terms of the warranty or about product service, refer to the warranty statement enclosed with this product or contact your local Texas Instruments retailer/distributor.

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