# Appendix

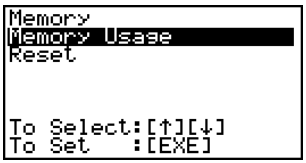
# Appendix A Resetting the Calculator

**Warning!**

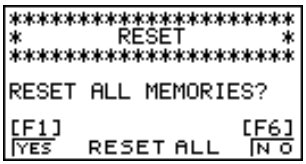
The procedure described here clears all memory contents. Never perform this operation unless you want to totally clear the memory of the calculator. If you need the data currently stored in memory, be sure to write it down somewhere before performing the RESET operation.

### ●To reset the calculator

1. Highlight the **MEM** icon on the main menu and then press [EXE], or press [F] [tan].

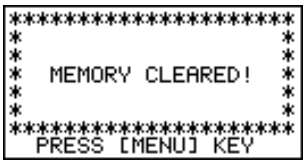



2. Use [▼] to move the highlighting down to “Reset” and then press [EXE].




[F1] [F6]

3. Press [F1] (YES) to reset the calculator or [F6] (NO) to abort the operation without resetting anything.

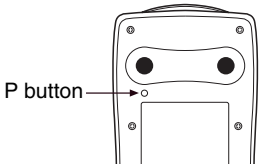



4. Press [MENU].

P.11

- If the display appears to dark or dim after you reset the calculator, adjust the contrast.

- If the calculator stops operating correctly for some reason, use a thin, pointed object to press the P button on the back of the calculator. This should make the RESET screen appear on the display. Perform the procedure to complete the RESET operation.

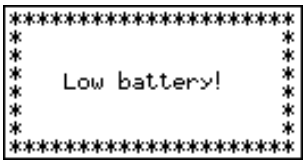



- Pressing the P button while an internal calculation is being performed will cause all data in memory to be deleted.

# Appendix B Power Supply

This calculator is powered by four AAA-size (LR03 (AM4) or R03 (UM-4)) batteries. In addition, it uses a single CR2032 lithium battery as a back up power supply for the memory.

If the following message appears on the display, immediately turn off the calculator and replace batteries.




If you try to continue using the calculator, it will automatically turn off in order to protect memory contents. You will not be able to turn power back on until you replace batteries.

Be sure to replace the main batteries at least once every two years, no matter how much you use the calculator during that time.

The batteries that come with this calculator discharge slightly during shipment and storage. Because of this, they may require replacement sooner than the normal expected battery life.

**Warning!**

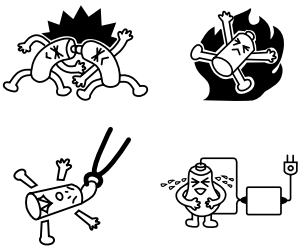
All memory contents will be deleted if you remove both the main power supply and the memory back up batteries at the same time. If you ever remove both batteries, correctly reload them and then perform the reset operation.

## ■ Replacing Batteries

**Precautions:**

Incorrectly using batteries can cause them to burst or leak, possibly damaging the interior of the calculator. Note the following precautions:

- Be sure that the positive (+) and negative (–) poles of each battery are facing in the proper directions.
- Never mix batteries of different types.
- Never mix old batteries and new ones.
- Never leave dead batteries in the battery compartment.
- Remove the batteries if you do not plan to use the calculator for long periods.
- Never try to recharge the batteries supplied with the calculator.



- Do not expose batteries to direct heat, let them become shorted, or try to take them apart.

(Should a battery leak, clean out the battery compartment of the calculator immediately, taking care to avoid letting the battery fluid come into direct contact with your skin.)

Keep batteries out of the reach of small children. If swallowed, consult with a physician immediately.

### ●To replace the main power supply batteries

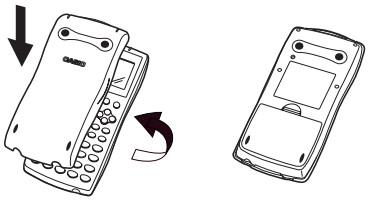
* Never remove the main power supply and the memory back up batteries from the calculator at the same time.
* Never turn on the calculator while the main power supply batteries are removed or not loaded correctly. Doing so can cause memory data to be deleted and malfunction of the calculator. If mishandling of batteries causes such problems, correctly load batteries and then perform the RESET operation to resume normal operation.
* Be sure to replace all four batteries with new ones.

1. Press [SHIFT] [OFF] to turn off the calculator.

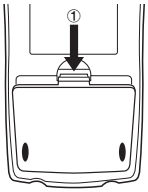
**Warning!**

* Be sure to turn the calculator off before replacing batteries. Replacing batteries with power on will cause data in memory to be deleted.

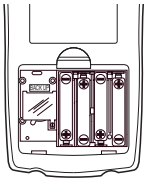
2. Making sure that you do not accidently press the [AC/ON] key, attach the case to the calculator and then turn it over.



3. Remove the back cover from the calculator by pulling with your finger at the point marked ①.




4. Remove the four old batteries.
5. Load a new set of four batteries, making sure that their positive (+) and negative (–) ends are facing in the proper directions.



6. Replace the back cover.
7. Turn the calculator front side up and remove its case. Next, press [AC/ON] to turn on power.

- Power supplied by memory back up battery while the main power supply batteries are removed for replacement retains memory contents.
- Do not leave the calculator without main power supply batteries loaded for long periods. Doing so can cause deletion of data stored in memory.
- If the figures on the display appear too light and hard to see after you turn on power, adjust the contrast.

### ●To replace the memory back up battery

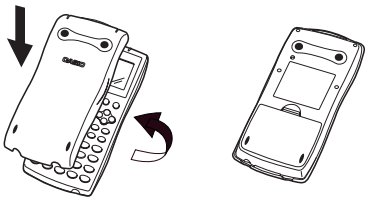
* Before replacing the memory back up battery, turn on the calculator and check to see if the “Low battery!” message appears on the display. If it does, replace the main power supply batteries before replacing the back up power supply battery.
* Never remove the main power supply and the memory back up batteries from the calculator at the same time.
* Be sure to replace the back up power supply battery at least once 2 years, regardless of how much you use the calculator during that time. Failure to do so can cause data in memory to be deleted.

1. Press [SHIFT] [OFF] to turn off the calculator.

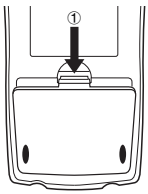
**Warning!**

* Be sure to turn the calculator off before replacing batteries. Replacing batteries with power on will cause data in memory to be deleted.

2. Making sure that you do not accidently press the [AC/ON] key, attach the case to the calculator and then turn it over.

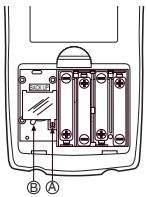


3. Remove the back cover from the calculator by pulling with your finger at the point marked ①.

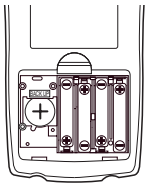



4. Remove screw Ⓐ on the back of the calculator, and remove the back up battery compartment cover.

5. Insert a thin, pointed non-metal object (such as a toothpick) into the hole maked Ⓑ and remove the old battery.



6. Wipe off the surfaces of a new battery with a soft, dry cloth. Load it into the calculator so that its positive (+) side is facing up.



7. Install the memory protection battery cover onto the calculator and secure it in place with the screw. Next, replace the back cover.

8. Turn the calculator front side up and remove its case. Next, press [AC/ON] to turn on power.

## ■ About the Auto Power Off Function

Calculator power turns off automatically if you do not perform any key operation for about 6 minutes. To restore power, press [AC/ON].

# Appendix C Error Message Table

| Message | Meaning | Countermeasure |
|---|---|---|
| Syn ERROR | ① Calculation formula contains an error.<br>② Formula in a program contains an error. | ① Use ◀ or ▶ to display the point where the error was generated and correct it.<br>② Use ◀ or ▶ to display the point where the error was generated and then correct the program. |
| Ma ERROR | ① Calculation result exceeds calculation range.<br>② Calculation is outside the input range of a function.<br>③ Illogical operation (division by zero, etc.)<br>④ Poor precision in Σ calculation results.<br>⑤ Poor precision in differential calculation results.<br>⑥ Poor precision in integration calculation results.<br>⑦ Cannot find results of equation calculations. | ①②③④<br>Check the input numeric value and correct it.<br>When using memories, check that the numeric values stored in memories are correct.<br>⑤ Try using a smaller value for $\Delta x$ ($x$ increment/decrement).<br>⑥ Try changing the tolerance "tol" when using Gauss-Kronrod Rule or the number of divisions "$n$" when using Simpson's Rule to another value.<br>⑦ Check the coefficients of the equation. |
| Go ERROR | ① No corresponding Lbl $n$ for Goto $n$.<br>② No program stored in program area Prog "file name". | ① Correctly input a Lbl $n$ to correspond to the Goto $n$ , or delete the Goto $n$ if not required.<br>② Store a program in program area Prog "file name", or delete the Prog "file name" if not required. |
| Ne ERROR | • Nesting of subroutines by Prog "file name" exceeds 10 levels. | • Ensure that Prog "file name" is not used to return from subroutines to main routine. If used, delete any unnecessary Prog "file name".<br>• Trace the subroutine jump destinations and ensure that no jumps are made back to the original program area. Ensure that returns are made correctly. |

| Message | Meaning | Countermeasure |
|---|---|---|
| Stk ERROR | • Execution of calculations that exceed the capacity of the stack for numeric values or stack for commands. | • Simplify the formulas to keep stacks within 10 levels for the numeric values and 26 levels for the commands.<br>• Divide the formula into two or more parts. |
| Mem ERROR | • Not enough memory to input a function into function memory.<br>• Not enough memory to create a matrix using the specified dimension.<br>• Not enough memory to hold matrix calculation result.<br>• Not enough memory to store data in list function.<br>• Not enough memory to input coefficient for equation.<br>• Not enough memory to hold equation calculation result.<br>• Not enough memory to hold function input in the Graph Mode for graph drawing.<br>• Not enough memory to hold function input in the DYNA Mode for graph drawing.<br>• Not enough memory to hold function or recursion input. | • Keep the number of variables you use for the operation within the number of variables currently available.<br>• Simplify the data you are trying to store to keep it within the available memory capacity.<br>• Delete no longer needed data to make room for the new data. |
| Arg ERROR | • Incorrect argument specification for a command that requires an argument. | • Correct the argument.<br>• Lbl $n$ , Goto $n$ : $n$ = integer from 0 through 9. |
| Dim ERROR | • Illegal dimension or list used during matrix calculations. | • Check matrix or list dimension. |
| Com ERROR | • Problem with cable connection or parameter setting during program data communications. | • Check cable connection. |
| Transmit ERROR! | • Problem with cable connection or parameter setting during data communications. | • Check cable connection. |
| Receive ERROR! | • Problem with cable connection or parameter setting during data communications. | • Check cable connection. |
| Memory Full! | • Memory of receiving unit became full during program data communications. | • Delete some data stored in the receiving unit and try again. |

# Appendix D Input Ranges

| Function | Input ranges | Internal digits | Accuracy | Notes |
|---|---|---|---|---|
| $\sin x$<br>$\cos x$<br>$\tan x$ | (DEG) $\|x\| < 9 \times (10^9)^\circ$<br>(RAD) $\|x\| < 5 \times 10^7 \pi$rad<br>(GRA) $\|x\| < 1 \times 10^{10}$grad | 15 digits | As a rule, accuracy is ±1 at the 10th digit.* | However, for $\tan x$:<br>$\|x\| \neq 90(2n+1)$:DEG<br>$\|x\| \neq \pi/2(2n+1)$:RAD<br>$\|x\| \neq 100(2n+1)$:GRA |
| $\sin^{-1} x$<br>$\cos^{-1} x$ | $\|x\| \leqq 1$ | " | " | |
| $\tan^{-1} x$ | $\|x\| < 1 \times 10^{100}$ | | | |
| $\sinh x$<br>$\cosh x$ | $\|x\| \leqq 230.2585092$ | " | " | |
| $\tanh x$ | $\|x\| < 1 \times 10^{100}$ | | | |
| $\sinh^{-1} x$ | $\|x\| < 5 \times 10^{99}$ | " | " | |
| $\cosh^{-1} x$ | $1 \leqq x < 5 \times 10^{99}$ | | | |
| $\tanh^{-1} x$ | $\|x\| < 1$ | | | |
| $\log x$<br>$\ln x$ | $1 \times 10^{-99} \leqq x < 1 \times 10^{100}$ | " | " | |
| $10^x$ | $-1 \times 10^{100} < x < 100$ | " | " | |
| $e^x$ | $-1 \times 10^{100} < x \leqq 230.2585092$ | | | |
| $\sqrt{x}$ | $0 \leqq x < 1 \times 10^{100}$ | " | " | |
| $x^2$ | $\|x\| < 1 \times 10^{50}$ | | | |
| $1/x$ | $\|x\| < 1 \times 10^{100}$, $x \neq 0$ | " | " | |
| $\sqrt[3]{x}$ | $\|x\| < 1 \times 10^{100}$ | | | |
| $x!$ | $0 \leqq x \leqq 69$<br>($x$ is an integer) | " | " | |
| $nPr$<br>$nCr$ | Result $< 1 \times 10^{100}$<br>$n, r$ ($n$ and $r$ are integers)<br>$0 \leqq r \leqq n$,<br>$n < 1 \times 10^{10}$ | " | " | |
| Pol $(x, y)$ | $\sqrt{x^2 + y^2} < 1 \times 10^{100}$ | " | " | |

| Function | Input ranges | Internal digits | Accuracy | Notes |
|---|---|---|---|---|
| Rec $(r, \theta)$ | $\lvert r\rvert < 1 \times 10^{100}$<br>(DEG) $\lvert\theta\rvert < 9 \times (10^9)^\circ$<br>(RAD) $\lvert\theta\rvert < 5 \times 10^7\pi$ rad<br>(GRA) $\lvert\theta\rvert < 1 \times 10^{10}$grad | 15 digits | As a rule, accuracy is ±1 at the 10th digit.* | However, for $\tan\theta$ :<br>$\lvert\theta\rvert \neq 90(2n+1)$:DEG<br>$\lvert\theta\rvert \neq \pi/2(2n+1)$:RAD<br>$\lvert\theta\rvert \neq 100(2n+1)$:GRA |
| ° ' " | $\lvert a\rvert, b, c < 1 \times 10^{100}$<br>$0 \leqq b, c$ | " | " | |
| $\overleftarrow{\text{° ' "}}$ | $\lvert x\rvert < 1 \times 10^{100}$<br>Sexagesimal display:<br>$\lvert x\rvert < 1 \times 10^7$ | | | |
| $\wedge(x^y)$ | $x > 0$:<br>$-1 \times 10^{100} < y\log x < 100$<br>$x = 0 : y > 0$<br>$x < 0$ :<br>$y = n, \frac{1}{2n+1}$ ($n$ is an integer or a fraction)<br>However;<br>$-1 \times 10^{100} < y\log \lvert x\rvert < 100$ | " | " | |
| $\sqrt[x]{y}$ | $y > 0 : x \neq 0$<br>$-1 \times 10^{100} < \frac{1}{x}\log y < 100$<br>$y = 0 : x > 0$<br>$y < 0 : x = 2n+1, \frac{1}{n}$<br>($n \neq 0$, $n$ is an integer or a fraction)<br>However;<br>$-1 \times 10^{100} < \frac{1}{x}\log \lvert y\rvert < 100$ | " | " | |
| $a\,b/c$ | Total of integer, numerator and denominator must be within 10 digits (includes division marks). | " | " | |
| STAT | $\lvert x\rvert < 1 \times 10^{50}$<br>$\lvert y\rvert < 1 \times 10^{50}$<br>$\lvert n\rvert < 1 \times 10^{100}$<br>$x\sigma_n, y\sigma_n, \overline{x}, \overline{y}, a, b, c, d, e, r$ :<br>$n \neq 0$<br>$x\sigma_{n-1}, y\sigma_{n-1}$: $n \neq 0, 1$ | " | " | |

| Function | Input ranges |
|---|---|
| Binary, octal, decimal, hexadecimal calculation | Values fall within following ranges after conversion:<br>DEC: –2147483648 ≦ $x$ ≦ 2147483647<br>BIN: 1000000000000000 ≦ $x$<br>≦ 1111111111111111 (negative)<br>0 ≦ $x$ ≦ 0111111111111111 (0, positive)<br>OCT: 20000000000 ≦ $x$ ≦ 37777777777 (negative)<br>0 ≦ $x$ ≦ 17777777777 (0, positive)<br>HEX: 80000000 ≦ $x$ ≦ FFFFFFFF (negative)<br>0 ≦ $x$ ≦ 7FFFFFFF (0, positive) |

* For a single calculation, calculation error is ±1 at the 10th digit. (In the case of exponential display, calculation error is ±1 at the last significant digit.) Errors are cumulative in the case of consecutive calculations, which can also cause them to become large. (This is also true of internal consecutive calculations that are performed in the case of ^($x^y$), $\sqrt[x]{y}$, $x!$, $\sqrt[3]{x}$, $n$P$r$, $n$C$r$, etc.)
In the vicinity of a function's singular point and point of inflection, errors are cumulative and may become large.

# Appendix E Specifications

**Variables:** 28

**Calculation range:**

$\pm 1 \times 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$ and 0. Internal operations use 15-digit mantissa.

**Exponential display range:** Norm 1: $10^{-2} > |x|, |x| \geqq 10^{10}$
Norm 2: $10^{-9} > |x|, |x| \geqq 10^{10}$

**User memory capacity:**

| | | |
|---|---|---|
| fx-9750G | PLUS | ..... 28,000 bytes (max.) |
| CFX-9850G | PLUS | ..... 30,000 bytes (max.) |
| CFX-9850GB | PLUS | ..... 30,000 bytes (max.) |
| CFX-9850GC | PLUS | ..... 61,000 bytes (max.) |
| CFX-9950GB | PLUS | ..... 61,000 bytes (max.) |

**Power supply:**

**Main:** Four AAA-size batteries (LR03 (AM4) or R03 (UM-4))

**Back-up:** One CR2032 lithium battery

**Power consumption:** 0.06W

**Approximate battery life**

**Main (fx-9750G PLUS):**

LR03 (AM4): 420 hours (continuous display of main menu)
350 hours continuous operation (5 minutes calculation, 55 minutes display)

R03 (UM-4): 240 hours (continuous display of main menu)
200 hours continuous operation (5 minutes calculation, 55 minutes display)

**Main (CFX-9850G PLUS / CFX-9850GB PLUS / CFX-9850GC PLUS CFX-9950GB PLUS):**

LR03 (AM4): 320 hours (continuous display of main menu)
280 hours continuous operation (5 minutes calculation, 55 minutes display)

R03 (UM-4): 180 hours (continuous display of main menu)
160 hours continuous operation (5 minutes calculation, 55 minutes display)

**Back-up:** 2 years

**Auto power off:**

Power is automatically turned off approximately 6 minutes after last operation except when drawing dynamic graphs.

The calculator automatically turns off if it is left for about 60 minutes with a calculation stopped by an output command (◢), which is indicated by the "-Disp-" message on the display.

**Ambient temperature range:** 0°C to 40°C

**Dimensions:** 24.5 mm (H) × 90.0 mm (W) × 182.5 mm (D)
$^{15}/_{16}$" (H) × 3 $^{9}/_{16}$" (W) × 7 $^{3}/_{16}$" (D)

**Weight:** 215g (7.58 oz) (including batteries)

## Data Communications

**Functions:**

Program contents and file names; function memory data; matrix memory data; list data; variable data; Table & Graph data; graph functions; equation calculation coefficients

**Method:** Start-stop (asynchronous), half-duplex

**Transmission speed (BPS):** 9600 bits/second

**Parity:** none

**Bit length:** 8 bits

**Stop bit:**

Send: 3 bits

Receive: 2 bits

X ON/X OFF Control: None

# Index

## Symbols



## A



## B



## C

## D



## E



## F



## G

## H



## I



## J



## K



## L



## M

# Index



## N



## O



## P

## Q



## R



## S

# Index

## T



## V



## W



## X



## Y



## Z

# Command Index

# Key Index

| Key | Primary Function | combined with SHIFT | combined with ALPHA |
|---|---|---|---|
| Trace F1 | Turns trace function on/off.<br>Selects 1st function menu item. | | |
| Zoom F2 | Turns zoom function on.<br>Selects 2nd function menu item. | | |
| V-Window F3 | Displays View Window parameter input screen.<br>Select 3rd function menu item. | | |
| Sketch F4 | Displays sketch menu.<br>Selects 4th function menu item. | | |
| G-Solv F5 | Displays graph solve menu.<br>Selects 5th function menu item. | | |
| G↔T F6 | Switches display between graph & text screens.<br>Selects 6th function menu item. | | |
| SHIFT | Activates shift functions of other keys and function menus. | | |
| OPTN | Displays option menu. | | |
| PRGM VARS | Displays the variable data menu. | Displays program command menu. | |
| SET UP MENU | Returns to the Main Menu. | Shows the set up display. | |
| A-LOCK ALPHA | Allows entry of alphanumeric characters shown in red. | Locks/Unlocks entry of alphanumeric characters. | |
| $\sqrt{\ }$ $r$ $x^2$ | Press after entering value to calculate square. | Press before entering value to calculate square root. | Enters character $r$. |
| $\sqrt[x]{\ }$ $\theta$ ^ | Press between two values to make second value exponent of first. | Press between entering values for X & Y to show $x$th root of $y$. | Enters character $\theta$ . |
| QUIT EXIT | Backsteps to the previous menu. | Returns directly to initial screen of the mode. | |
| ▲ | Moves cursor upward.<br>Scrolls screen. | Switches to previous function in trace mode. | |
| ▼ | Moves cursor downward.<br>Scrolls screen. | Switches to next function in trace mode. | |
| ◀ | Moves cursor to left. Scrolls screen. Press after EXE to display calculation from end. | | |

| Key | Primary Function | combined with SHIFT | combined with ALPHA |
|---|---|---|---|
| ▶ | Moves cursor to right. Scrolls screen. Press after EXE to display calculation from beginning. | | |
| A X,θ,T | Allows input of variable X, θ, and T. | | Enters letter A. |
| $10^x$ B log | Press before entering value to calculate common logalithm. | Press before entering exponent value of 10. | Enters letter B. |
| $e^x$ C ln | Press before entering value to calculate natural logarithm. | Press before entering exponent value of e. | Enters letter C. |
| $\sin^{-1}$ D sin | Press before entering value to calculate sine. | Press before entering value to calculate inverse sine. | Enters letter D. |
| $\cos^{-1}$ E cos | Press before entering value to calculate cosine. | Press before entering value to calculate inverse cosine. | Enters letter E. |
| $\tan^{-1}$ F tan | Press before entering value to calculate tangent. | Press before entering value to calculate inverse tangent. | Enters letter F. |
| $d/c$ G $a\frac{b}{c}$ | Press between entering fraction values.<br>Converts fraction to decimal. | Displays improper fractions. | Enters letter G. |
| H F↔D | Converts a fraction to a decimal value or a decimal value to a fraction.<br>Sends a shot of the current screen to a connected device. | | Enters letter H. |
| $\sqrt[3]{}$ I ( | Enters open parenthesis in formula. | Press before entering value to calculate cube root. | Enters letter I. |
| $x^{-1}$ J ) | Enters close parenthesis in formula. | Press after entering value to calculate reciprocal. | Enters letter J. |
| K , | Enters comma. | | Enters letter K. |
| L → | Assigns value to a value memory name. | | Enters letter L. |
| M 7 | Enters number 7. | | Enters letter M. |
| N 8 | Enters number 8. | | Enters letter N. |
| O 9 | Enters number 9. | | Enters letter O. |

# Key Index

| Key | Primary Function | combined with SHIFT | combined with ALPHA |
|---|---|---|---|
| INS DEL | Deletes character at current cursor location. | Allows insertion of characters at cursor location. | |
| OFF AC/ON | Turns power on.<br>Clears the display. | Turns power off. | |
| P 4 | Enters number 4. | | Enters letter P. |
| Q 5 | Enters number 5. | | Enters letter Q. |
| R 6 | Enters number 6. | | Enters letter R. |
| { S × | Multiplication function. | Enters open curly bracket. | Enters letter S. |
| } T ÷ | Division function. | Enters close curly bracket. | Enters letter T. |
| U 1 | Enters number 1. | | Enters letter U. |
| V 2 | Enters number 2. | | Enters letter V. |
| W 3 | Enters number 3. | | Enters letter W. |
| [ X + | Addition function.<br>Specifies positive value. | Enters open bracket. | Enters letter X. |
| ] Y − | Subtraction function.<br>Specifies negative value. | Enters close bracket. | Enters letter Y. |
| Z 0 | Enters number 0. | | Enters letter Z. |
| = SPACE • | Enters decimal point. | Enters character =. | Enters a blank space. |
| π EXP | Allows entry of exponent. | Inputs value of pi.<br>Enters pi symbol. | |
| Ans (−) | Enter before value to specify as negative. | Recalls most recent calculation result. | |
| ↵ EXE | Displays result of calculation. | Inputs a new line. | |

# Program Mode Command List

| [SETUP] key | | | |
|---|---|---|---|
| **Level 1** | **Level 2** | **Level 3** | **Command** |
| ANGL | Deg | | **Deg** |
| | Rad | | **Rad** |
| | Gra | | **Gra** |
| COOR | On | | **CoordOn** |
| | Off | | **CoordOff** |
| GRID | On | | **GridOn** |
| | Off | | **GridOff** |
| AXES | On | | **AxesOn** |
| | Off | | **AxesOff** |
| LABL | On | | **LabelOn** |
| | Off | | **LabelOff** |
| DISP | Fix | | **Fix_** |
| | Sci | | **Sci_** |
| | Norm | | **Norm** |
| | Eng | | **Eng** |
| P/L ◆ | Blue | | **P/L-Blue** |
| | Orng | | **P/L-Orange** |
| | Grn | | **P/L-Green** |
| DRAW | Con | | **G-Connect** |
| | Plot | | **G-Plot** |
| DERV | On | | **DerivOn** |
| | Off | | **DerivOff** |
| BACK | None | | **BG-None** |
| | Pict | | **BG-Pict_** |
| FUNC | On | | **FuncOn** |
| | Off | | **FuncOff** |
| SIML | On | | **SimulOn** |
| | Off | | **SimulOff** |
| S-WIN | Auto | | **S-WindAuto** |
| | Man | | **S-WindMan** |
| LIST | File1 | | **File1** |
| | File2 | | **File2** |
| | File3 | | **File3** |
| | File4 | | **File4** |
| | File5 | | **File5** |
| | File6 | | **File6** |
| LOCS ◆ | On | | **LocusOn** |
| | Off | | **LocusOff** |
| T-VAR | Rang | | **VarRange** |
| | LIST | List1 | **VarList1** |
| | | List2 | **VarList2** |
| | | List3 | **VarList3** |
| | | List4 | **VarList4** |
| | | List5 | **VarList5** |
| | | List6 | **VarList6** |
| Σ DSP | On | | **Σ dispOn** |
| | Off | | **Σ dispOff** |
| RESID | None | | **Resid-None** |
| | List | | **Resid-List_** |

| [VARS] key | | | |
|---|---|---|---|
| **Level 1** | **Level 2** | **Level 3** | **Command** |
| V-WIN | X | min | **Xmin** |
| | | max | **Xmax** |
| | | scal | **Xscl** |
| | Y | min | **Ymin** |
| | | max | **Ymax** |
| | | scal | **Yscl** |
| | T, $\theta$ | min | **T$\theta$min** |
| | | max | **T$\theta$max** |
| | | ptch | **T$\theta$ptch** |
| | R-X | min | **RightXmin** |
| | | max | **RightXmax** |
| | | scal | **RightXscl** |
| | R-Y | min | **RightYmin** |
| | | max | **RightYmax** |
| | | scal | **RightYscl** |
| | R-T, $\theta$ | min | **RightT$\theta$min** |
| | | max | **RightT$\theta$max** |
| | | ptch | **RightT$\theta$ptch** |
| FACT | Xfct | | **Xfct** |
| | Yfct | | **Yfct** |
| STAT | X | n | **n** |
| | | $\bar{x}$ | **$\bar{x}$** |
| | | Σx | **Σx** |
| | | $\Sigma x^2$ | **$\Sigma x^2$** |
| | | xσn | **xσn** |
| | | xσn-1 | **xσn-1** |
| | | minX | **minX** |
| | | maxX | **maxX** |
| | Y | $\bar{y}$ | **$\bar{y}$** |
| | | Σy | **Σy** |
| | | $\Sigma y^2$ | **$\Sigma y^2$** |
| | | Σxy | **Σxy** |
| | | yσn | **yσn** |
| | | yσn-1 | **yσn-1** |
| | | minY | **minY** |
| | | maxY | **maxY** |
| | GRPH | a | **a** |
| | | b | **b** |
| | | c | **c** |
| | | d | **d** |
| | | e | **e** |
| | | r | **r** |
| | | Q1 | **Q1** |
| | | Med | **Med** |
| | | Q3 | **Q3** |
| | | Mod | **Mod** |
| | | Strt | **H_Start** |
| | | Pitch | **H_pitch** |

| | | | |
|---|---|---|---|
| | PTS | x1 | **x1** |
| | | y1 | **y1** |
| | | x2 | **x2** |
| | | y2 | **y2** |
| | | x3 | **x3** |
| | | y3 | **y3** |
| | TEST | n | **n** |
| | | $\bar{x}$ | **$\bar{x}$** |
| | | xσn-1 | **xσn-1** |
| | | n1 | **n1** |
| | | n2 | **n2** |
| | | $\bar{x}$1 | **$\bar{x}$1** |
| | | $\bar{x}$2 | **$\bar{x}$2** |
| | | x1σ | **x1σn-1** |
| | | x2σ | **x2σn-1** |
| | | xpσ | **xpσn-1** |
| | | F | **F** |
| | | Fdf | **Fdf** |
| | | SS | **SS** |
| | | MS | **MS** |
| | | Edf | **Edf** |
| | | SSe | **SSe** |
| | | MSe | **MSe** |
| | RESLT | p | **p** |
| | | z | **z** |
| | | t | **t** |
| | | Chi | **$\chi^2$** |
| | | F | **F** |
| | | Left | **Left** |
| | | Right | **Right** |
| | | $\hat{p}$ | **$\hat{p}$** |
| | | $\hat{p}$1 | **$\hat{p}$1** |
| | | $\hat{p}$2 | **$\hat{p}$2** |
| | | df | **df** |
| | | s | **s** |
| | | r | **r** |
| | | $r^2$ | **$r^2$** |
| GRPH | Y | | **Y** |
| | r | | **r** |
| | Xt | | **Xt** |
| | Yt | | **Yt** |
| | X | | **X** |
| DYNA | Strt | | **D_Start** |
| | End | | **D_End** |
| | Pitch | | **D_pitch** |
| TABL | Strt | | **F_Start** |
| | End | | **F_End** |
| | Pitch | | **F_pitch** |
| | Reslt | | **F_Result** |

| | | | |
|---|---|---|---|
| RECR | FORM | an | **an** |
| | | an+1 | **an+1** |
| | | an+2 | **an+2** |
| | | bn | **bn** |
| | | bn+1 | **bn+1** |
| | | bn+2 | **bn+2** |
| | RANG | Strt | **R_Start** |
| | | End | **R_End** |
| | | a0 | **a0** |
| | | a1 | **a1** |
| | | a2 | **a2** |
| | | b0 | **b0** |
| | | b1 | **b1** |
| | | b2 | **b2** |
| | | anSt | **anStart** |
| | | bnSt | **bnStart** |
| | Reslt | | **R_Result** |
| EQUA | S-Rlt | | **Sim_Result** |
| | S-Cof | | **Sim_Coef** |
| | P-Rlt | | **Ply_Result** |
| | P-Cof | | **Ply_Coef** |
| TVM | n | | **n** |
| | I% | | **I%** |
| | PV | | **PV** |
| | PMT | | **PMT** |
| | FV | | **FV** |
| | P/Y | | **P/Y** |
| | C/Y | | **C/Y** |

## [PRGM] key

| Level 1 | Level 2 | Level 3 | Command |
|---|---|---|---|
| COM | If | | **If_** |
| | Then | | **Then_** |
| | Else | | **Else_** |
| | I-End | | **IfEnd** |
| | For | | **For_** |
| | To | | **_To_** |
| | Step | | **_Step_** |
| | Next | | **Next** |
| | While | | **While_** |
| | WEnd | | **WhileEnd** |
| | Do | | **Do** |
| | Lp-W | | **LpWhile_** |
| CTL | Prog | | **Prog_** |
| | Rtrn | | **Return** |
| | Brk | | **Break** |
| | Stop | | **Stop** |
| JUMP | Lbl | | **Lbl_** |
| | Goto | | **Goto_** |
| | ⇒ | | ⇒ |
| | Isz | | **Isz_** |
| | Dsz | | **Dsz_** |
| ? | | | **?** |
| ◢ | | | ◢ |
| CLR | Text | | **ClrText** |
| | Grph | | **ClrGraph** |
| | List | | **ClrList** |
| DISP | Stat | | **DrawStat** |
| | Grph | | **DrawGraph** |
| | Dyna | | **DrawDyna** |
| | F-Tbl | Tabl | **DispF-Tbl** |
| | | G-Con | **DrawFTG-Con** |
| | | G-Plt | **DrawFTG-Plt** |
| | R-Tbl | Tabl | **DispR-Tbl** |
| | | Web | **DrawWeb_** |
| | | an-Cn | **DrawR-Con** |
| | | Σa-Cn | **DrawR Σ-Con** |
| | | an-Pl | **DrawR-Plt** |
| | | Σa-Pl | **DrawR Σ -Plt** |
| REL | = | | **=** |
| | ≠ | | **≠** |
| | > | | **>** |
| | < | | **<** |
| | ≥ | | **≥** |
| | ≤ | | **≤** |
| I/O | Lcte | | **Locate_** |
| | Gtky | | **Getkey** |
| | Send | | **Send(** |
| | Recv | | **Receive(** |
| : | | | **:** |

## [SHIFT] key

| Level 1 | Level 2 | Level 3 | Command |
|---|---|---|---|
| ZOOM | Fact | | **Factor_** |
| V-WIN | V-Win | | **ViewWindow_** |
| | Sto | | **StoV-Win_** |
| | Rcl | | **RclV-Win_** |
| SKTCH | Cls | | **Cls** |
| | Tang | | **Tangent_** |
| | Norm | | **Normal_** |
| | Inv | | **Inverse_** |
| | GRPH | Y= | **Graph_Y=** |
| | | r= | **Graph_r=** |
| | | Parm | **Graph(X,Y)=(** |
| | | X=c | **Graph_X=** |
| | | G-/dx | **Graph_ ∫** |
| | | Y> | **Graph_Y>** |
| | | Y< | **Graph_Y<** |
| | | Y≥ | **Graph_Y≥** |
| | | Y≤ | **Graph_Y≤** |
| | PLOT | Plot | **Plot_** |
| | | Pl-On | **PlotOn_** |
| | | Pl-Off | **PlotOff_** |
| | | Pl-Chg | **PlotChg_** |
| | LINE | Line | **Line** |
| | | F-Line | **F-Line_** |
| | Crcl | | **Circle_** |
| | Vert | | **Vertical_** |
| | Hztl | | **Horizontal_** |
| | Text | | **Text_** |
| | PIXL | On | **PxlOn_** |
| | | Off | **PxlOff_** |
| | | Chg | **PxlChg_** |
| | Test | | **PxlTest_** |

## [F4](MENU) key

| Level 1 | Level 2 | Level 3 | Command |
|---|---|---|---|
| STAT | DRAW | On | **DrawOn** |
| | | Off | **DrawOff** |
| | GRPH | GPH1 | **S-Gph1_** |
| | | GPH2 | **S-Gph2_** |
| | | GPH3 | **S-Gph3_** |
| | | Scat | **Scatter** |
| | | xy | **xyLine** |
| | | Hist | **Hist** |
| | | Box | **MedBox** |
| | | $\overline{\text{Box}}$ | **MeanBox** |
| | | N-Dis | **N-Dist** |
| | | Brkn | **Broken** |
| | | X | **Linear** |
| | | Med | **Med-Med** |
| | | X^2 | **Quad** |
| | | X^3 | **Cubic** |
| | | X^4 | **Quart** |
| | | Log | **Log** |
| | | Exp | **Exp** |
| | | Pwr | **Power** |
| | | Sin | **Sinusoidal** |
| | | NPP | **NPPlot** |
| | | Lgst | **Logistic** |
| | LIST | List1 | **List1** |
| | | List2 | **List2** |
| | | List3 | **List3** |
| | | List4 | **List4** |
| | | List5 | **List5** |
| | | List6 | **List6** |
| | MARK | □ | **Square** |
| | | × | **Cross** |
| | | • | **Dot** |
| | COLR ◈ | Blue | **Blue_** |
| | | Orng | **Orange_** |
| | | Grn | **Green_** |
| | CALC | 1VAR | **1-Variable_** |
| | | 2VAR | **2-Variable_** |
| | | X | **LinearReg_** |
| | | Med | **Med-MedLine_** |
| | | X^2 | **QuadReg_** |
| | | X^3 | **CubicReg_** |
| | | X^4 | **QuartReg_** |
| | | Log | **LogReg_** |
| | | Exp | **ExpReg_** |
| | | Pwr | **PowerReg_** |
| | | Sin | **SinReg_** |
| | | Lgst | **LogisticReg_** |
| MAT | Swap | | **Swap_** |
| | ×Rw | | ***Row_** |
| | ×Rw+ | | ***Row+_** |
| | Rw+ | | **Row+_** |
| LIST | Srt-A | | **SortA(** |
| | Srt-D | | **SortD(** |
| GRPH | SEL | On | **G_SelOn_** |
| | | Off | **G_SelOff_** |
| | TYPE | Y= | **Y=Type** |
| | | r= | **r=Type** |
| | | Parm | **ParamType** |
| | | X=c | **X=cType** |
| | | Y> | **Y>Type** |
| | | Y< | **Y<Type** |
| | | Y≥ | **Y≥Type** |
| | | Y≤ | **Y≤Type** |
| | COLR ◈ | Blue | **BlueG_** |
| | | Orng | **OrangeG_** |
| | | Grn | **GreenG_** |
| | GMEM | Sto | **StoGMEM_** |
| | | Rcl | **RclGMEM_** |
| DYNA | On | | **D_SelOn_** |
| | Off | | **D_SelOff_** |
| | Var | | **D_Var_** |
| | TYPE | Y= | **Y=Type** |
| | | r= | **r=Type** |
| | | Parm | **ParamType** |
| TABL | On | | **T_SelOn_** |
| | Off | | **T_SelOff_** |
| | TYPE | Y= | **Y=Type** |
| | | r= | **r=Type** |
| | | Parm | **ParamType** |
| | Blue ◈ | | **BlueG_** |
| | Orng ◈ | | **OrangeG_** |
| | Grn ◈ | | **GreenG_** |
| RECR | SEL+C ◈ | On | **R_SelOn_** |
| | | Off | **R_SelOff_** |
| | | Blue | **BlueG_** |
| | | Orng | **OrangeG_** |
| | | Grn | **GreenG_** |
| | SEL (fx-9750G PLUS) | On | **R_SelOn_** |
| | | Off | **R_SelOff_** |
| | TYPE | an | **anType** |
| | | an+1 | **an+1Type** |
| | | an+2 | **an+2Type** |
| | n.an.. | n | **n** |
| | | an | **an** |
| | | an+1 | **an+1** |
| | | bn | **bn** |
| | | bn+1 | **bn+1** |

| [F6](SYBL) key | | | |
|---|---|---|---|
| Level 1 | Level 2 | Level 3 | Command |
| ' | | | **'** |
| " | | | **"** |
| ~ | | | **~** |
| ✻ | | | **✻** |
| / | | | **/** |
| # | | | **#** |

| [ALPHA] key | | | |
|---|---|---|---|
| Level 1 | Level 2 | Level 3 | Command |
| ' | | | **'** |
| " | | | **"** |
| ~ | | | **~** |

| [OPTN] key | | | |
|---|---|---|---|
| Level 1 | Level 2 | Level 3 | Command |
| LIST | List | | **List_** |
| | L→M | | **List→Mat(** |
| | Dim | | **Dim_** |
| | Fill | | **Fill(** |
| | Seq | | **Seq(** |
| | Min | | **Min(** |
| | Max | | **Max(** |
| | Mean | | **Mean(** |
| | Med | | **Median(** |
| | Sum | | **Sum_** |
| | Prod | | **Prod_** |
| | Cuml | | **Cuml_** |
| | % | | **Percent_** |
| | ⊿ | | **⊿List_** |
| MAT | Mat | | **Mat_** |
| | M→L | | **Mat→List(** |
| | Det | | **Det_** |
| | Trn | | **Trn_** |
| | Aug | | **Augment(** |
| | Iden | | **Identity_** |
| | Dim | | **Dim_** |
| | Fill | | **Fill(** |
| CPLX | i | | **i** |
| | Abs | | **Abs_** |
| | Arg | | **Arg_** |
| | Conj | | **Conjg_** |
| | ReP | | **ReP_** |
| | ImP | | **ImP_** |
| CALC | Solve | | **Solve(** |
| | d/dx | | **d/dx(** |
| | $d^2/dx^2$ | | **$d^2/dx^2$(** |
| | ∫dx | | **∫(** |
| | FMin | | **FMin(** |
| | FMax | | **FMax(** |
| | Σ( | | **Σ(** |
| STAT | $\hat{x}$ | | **$\hat{x}$** |
| | $\hat{y}$ | | **$\hat{y}$** |
| COLR ❖ | Orng | | **Orange_** |
| | Grn | | **Green_** |
| HYP | sinh | | **sinh_** |
| | cosh | | **cosh_** |
| | tanh | | **tanh_** |
| | $\sinh^{-1}$ | | **$\sinh^{-1}$_** |
| | $\cosh^{-1}$ | | **$\cosh^{-1}$_** |
| | $\tanh^{-1}$ | | **$\tanh^{-1}$_** |
| PROB | X! | | **!** |
| | nPr | | **P** |
| | nCr | | **C** |
| | Ran# | | **Ran#** |
| | P( | | **P(** |
| | Q( | | **Q(** |
| | R( | | **R(** |
| | t( | | **t(** |
| NUM | Abs | | **Abs_** |
| | Int | | **Int_** |
| | Frac | | **Frac_** |
| | Rnd | | **Rnd** |
| | Intg | | **Intg_** |
| ANGL | ° | | **°** |
| | r | | **r** |
| | g | | **g** |
| | °' " | | **□** |
| | Pol( | | **Pol(** |
| | Rec( | | **Rec(** |
| ESYM | m | | **m** |
| | μ | | **μ** |
| | n | | **n** |
| | p | | **p** |
| | f | | **f** |
| | k | | **k** |
| | M | | **M** |
| | G | | **G** |
| | T | | **T** |
| | P | | **P** |
| | E | | **E** |
| PICT | Sto | | **StoPict_** |
| | Rcl | | **RclPict_** |
| FMEM | fn | f1 | **f1** |
| | | f2 | **f2** |
| | | f3 | **f3** |
| | | f4 | **f4** |
| | | f5 | **f5** |
| | | f6 | **f6** |
| LOGIC | And | | **_And_** |
| | Or | | **_Or_** |
| | Not | | **Not_** |

GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A. (not applicable to other areas).

## NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Proper connectors must be used for connection to host computer and/or peripherals in order to meet FCC emission limits.

| | |
|---|---|
| Connector SB-62 | Power Graphic Unit to Power Graphic Unit |
| Connector FA-123 | Power Graphic Unit to PC for IBM/Macintosh Machine |

## Declaration of Conformity

| | |
|---|---|
| Model Number: | fx-9750G PLUS/CFX-9850G PLUS/CFX-9850GB PLUS/CFX-9950GB PLUS |
| Trade Name: | CASIO COMPUTER CO., LTD. |
| Responsible party: | CASIO, INC. |
| Address: | 570 MT. PLEASANT AVENUE, DOVER, NEW JERSEY 07801 |
| Telephone number: | 973-361-5400 |

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CASIO

**CASIO COMPUTER CO., LTD.**

6-2, Hon-machi 1-chome
Shibuya-ku, Tokyo 151-8543, Japan

G355-21, G356-21, G357-21, G359-21