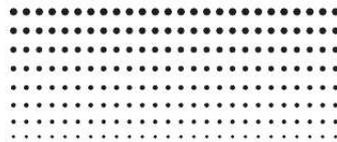# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for CASIO FX-83GT PLUS. You'll find the answers to all your questions on the CASIO FX-83GT PLUS in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual CASIO FX-83GT PLUS
User guide CASIO FX-83GT PLUS
Operating instructions CASIO FX-83GT PLUS
Instructions for use CASIO FX-83GT PLUS
Instruction manual CASIO FX-83GT PLUS
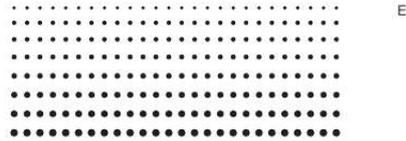
E

fx-83GT PLUS
fx-85GT PLUS
User's Guide

CASIO Worldwide Education Website
http://edu.casio.com
CASIO EDUCATIONAL FORUM
http://edu.casio.com/forum/

CASIO®

Manual abstract:

Important Information · The displays and illustrations (such as key markings) shown in this User's Guide are for illustrative purposes only, and may differ somewhat from the actual items they represent. · The contents of this manual are subject to change without notice. · In no event shall CASIO Computer Co., Ltd. be liable to anyone for special, collateral, incidental, or consequential damages in connection with or arising out of the purchase or use of this product and items that come with it. Moreover, CASIO Computer Co., Ltd. shall not be liable for any claim of any kind whatsoever by any other party arising out of the use of this product and the items that come with it. · Be sure to keep all user documentation handy for future reference.

Sample Operations Sample operations in this manual are indicated by a icon. Unless specifically stated, all sample operations assume that the calculator is in its initial default setup. Use the procedure under "Initializing the Calculator" to return the calculator to its initial default setup. For information about the , , , and marks that are shown in the sample operations, see "Configuring the Calculator Setup".

Initializing the Calculator Perform the following procedure when you want to initialize the calculator and return the calculation mode and setup to their initial default settings. Note that this operation also clears all data currently in calculator memory. (CLR) (All) (Yes)

Safety Precautions

Battery · Keep batteries out of the reach of small children. · Use only the type of battery specified for this calculator in this manual.

Handling Precautions · Even if the calculator is operating normally, replace the battery at least once every two years (R03 (UM-4)), or three years (LR44 (GPA76)). A dead battery can leak, causing damage to and malfunction of the calculator. Never leave a dead battery in the calculator. Do not try using the calculator while the battery is completely dead (fx-85GT PLUS). · The battery that comes with the calculator discharges slightly during shipment and storage. Because of this, it may require replacement sooner than the normal expected battery life. · Do not use an oxyride battery* or any other type of nickel-based primary battery with this product. Incompatibility between such batteries and product specifications can result in shorter battery life and product malfunction. · Avoid use and storage of the calculator in areas subjected to temperature extremes, and large amounts of humidity and dust. E-2 · Do not subject the calculator to excessive impact, pressure, or bending.

· Never try to take the calculator apart. · Use a soft, dry cloth to clean the exterior of the calculator. · Whenever discarding the calculator or batteries, be sure to do so in accordance with the laws and regulations in your particular area. * Company and product names used in this manual may be registered trademarks or trademarks of their respective owners.

Removing the Hard Case Before using the calculator, slide its hard case downwards to remove it, and then affix the hard case to the back of the calculator as shown in the illustration nearby.

Turning Power On and Off Press Press to turn on the calculator.

(OFF) to turn off the calculator. Auto Power Off Your calculator will turn off automatically if you do not perform any operation for about 10 minutes. If this happens, press the key to turn the calculator back on. Adjusting Display Contrast Display the CONTRAST screen by performing the following key operation: (SETUP) (CONT).

Next, use and to adjust contrast. After the setting is the way you want, press . Important: If adjusting display contrast does not improve display readability, it probably means that battery power is low. Replace the battery. Key Markings Pressing the or key followed by a second key performs the alternate function of the second key.

The alternate function is indicated by the text printed above the key. The following shows what the different colors of the alternate function key text mean. If key marking text is this color: Yellow Red It means this: Press and then the key to access the applicable function. Press and then the key to input the applicable variable, constant, or symbol. Alternate function s Keycap function sin1 D E-3 Reading the Display The display of the calculator shows expressions you input, calculation results, and various indicators.

Input expression Math Indicators Math Calculation result · If a indicator appears on the right side of the calculation result, it means the displayed calculation result continues to the right. Use and to scroll the calculation result display. · If a indicator appears on the right side of the input expression, it means the displayed calculation continues to the right. Use and to scroll the input expression display. Note that if you want to scroll the input expression while both the and indicators are displayed, you will need to press first and then use and to scroll. Display indicators This indicator: Means this: The keypad has been shifted by pressing the key. The keypad will unshift and this indicator will disappear when you press a key. The alpha input mode has been entered by pressing the key. The alpha input mode will be exited and this indicator will disappear when you press a key. There is a value stored in independent memory.

The calculator is standing by for input of a variable name to assign a value to the variable. This indicator appears after you press (STO). The calculator is standing by for input of a variable name to recall the variable's value. This indicator appears after you press . The calculator is in the STAT Mode. The default angle unit is degrees. The default angle unit is radians. The default angle unit is grads. FIX SCI Math A fixed number of decimal places is in effect. A fixed number of significant digits is in effect.

Natural Display is selected as the display format. Calculation history memory data is available and can be replayed, or there is more data above/below the current screen. Disp The display currently shows an intermediate result of a multi-statement calculation. S A M STO RCL STAT E-4 Important: For some type of calculation that takes a long time to execute, the display may show only the above indicators (without any value) while it performs the calculation internally.

Using Menus Some of the calculator's operations are performed using menus.

Pressing or , for example, will display a menu of applicable functions. The following are the operations you should use to navigate between menus. · You can select a menu item by pressing the number key that corresponds to the number to its left on the menu screen. · The indicator in the upper right corner of a menu means there is another menu below the current one. The indicator means another menu above.

Use and to switch between menus. · To close a menu without selecting anything, press . Specifying the Calculation Mode When you want to perform this type of operation: General calculations Statistical and regression calculations Generation of a number table based on an expression Verify a calculation Perform this key operation: (COMP) (STAT) (TABLE) (VERIF) Note: The initial default calculation mode is the COMP Mode. Configuring the Calculator Setup First perform the following key operation to display the setup menu: (SETUP). Next, use and and the number keys to configure the settings you want. Underlined (___) settings are initial defaults. MthIO LineIO Specifies the display format. Natural Display (MthIO) causes fractions, irrational numbers, and other expressions to be displayed as they are written on paper. MthIO: Selects MathO or LineO. MathO displays input and calculation results using the same format as they are written on paper.

LineO displays input the same way as MathO, but calculation results are displayed in linear format. Linear Display (LineIO) causes fractions and other expressions to be displayed in a single line. Note: · The calculator switches to Linear Display automatically whenever you enter the STAT Mode. · In this manual, the symbol next to a sample operation indicates Natural Display (MathO), while the symbol indicates Linear Display. E-5 Deg Rad Gra Specifies degrees, radians or grads as the angle unit for value input and calculation result display. Note: In this manual, the symbol next to a sample operation indicates degrees, while the symbol indicates radians. Fix Sci Norm Specifies the number of digits for display of a calculation result. Fix: The value you specify (from 0 to 9) controls the number of decimal places for displayed calculation results. Calculation results are rounded off to the specified digit before being displayed. Example: 100 ÷ 7 = 14.

286 (Fix 3) 14.29 (Fix 2) Sci: The value you specify (from 1 to 10) controls the number of significant digits for displayed calculation results. Calculation results are rounded off to the specified digit before being displayed. Example: 1 ÷ 7 = 1.4286 101 (Sci 5) 1.

429 101 (Sci 4) Norm: Selecting one of the two available settings (Norm 1, Norm 2) determines the range in which results will be displayed in non-exponential format. Outside the specified range, results are displayed using exponential format. Norm 1: 102 |x|, |x| 1010 Norm 2: 109 |x|, |x| 1010 Example: 1 ÷ 200 = 5 103 (Norm 1) 0.005 (Norm 2) ab/c d/c Specifies either mixed fraction (ab/c) or improper fraction (d/c) for display of fractions in calculation results. STAT ON ; OFF Specifies whether or not to display a FREQ (frequency) column in the STAT Mode Stat Editor.

Rdec ON ; OFF Specifies whether or not to display calculation results using recurring decimal form. Disp Dot ; Comma Specifies whether to display a dot or a comma for the calculation result decimal point. A dot is always displayed during input. Note: When dot is selected as the decimal point, the separator for multiple results is a comma (,). When comma is selected, the separator is a semicolon (;). CONT Contrast" for details. Adjusts display contrast. See "Adjusting Display Initializing Calculator Settntheses. If this happens, divide the calculation into multiple parts and calculate each part separately. Note: When you press and obtain a calculation result using Natural Display, part of the expression you input may be cut off.

If you need to view the entire input expression again, press and then use and to scroll the input expression. Using Values and Expressions as Arguments (Natural Display only) A value or an expression that you have already input can be used as the 7 , for example, you can make argum initial display format (fraction): · · 1 ÷ 7 = 1 = 0.142857 = 0.1428571429 (Norm 1) 7 Math 1 7 Math Display as fraction: Math Display as recurring decimal: Math Return to initial display format (Norm 1): · · 1 = 0.142857 = 0.1428571429 (Norm 1) 7 1 7 Display as recurring decimal: Decimal value according to Norm 1 setting: E-11 Return to initial display format (fraction): · · 1 ÷ 7 = 0.1428571429 (Norm 1) = 0.142857 = 1 7 1 7 Display as fraction: Display as recurring decimal: Return to initial display format (Norm 1): Conditions for Displaying a Calculation Result as a Recurring Decimal If a calculation result satisfies the following conditions, pressing will display it as a recurring decimal value. · The total number of digits used in the mixed fraction (including integer, numerator, denominator, and separator symbol) must be no more than 10. @@@@@@@@@@@@@For details, see "Recurring Decimal Calculations".

@@@@@@@@2+1=7 3 2 6 or 2 2 3 2 4-3 1=1 2 2 4 (4 3)3 3 3 1 1 1 1 1 2 2 2 2 2 7 6 7 6 76 1 2 12 Note: · Mixing fractions and decimal values in a calculation while Linear Display is selected will cause the result to be displayed as a decimal value. @@@@@@(75%) 660 880 Increase 2500 by 15%. (2875) 2500 2500 (%) 15 (%) Discount 3500 by 25%. @@You also can convert between sexagesimal and decimal.

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@To perform prime factorization on 1014 1014 (FACT) When you perform prime factorization on a value that includes a factor that is prime number with more than three digits, the part that cannot be factored will be enclosed in parentheses on the display.

To perform prime factorization on 4104676 (= 22 (FACT) Any one of the following operations will exit prime factorization result display. · Pressing (FACT) or . · Pressing any of the following keys: or . · Using the setup menu to change the angle unit setting (Deg, Rad, Gra) or the display digits setting (Fix, Sci, Norm). Note: · You will not be able to execute prime factorization while a decimal value, fraction, or negative value calculation result is displayed. Trying to do so will cause a math error (Math ERROR). · You will not be able to execute prime factorization while the result of a calculation that uses Pol, Rec is displayed. 10132) E-17 Function Calculations For actual operations using each function, see the "Examples" section following the list below. : is displayed as 3.141592654, but internal calculations. internal calculations. sin, cos, tan, sin-1, cos-1, tan-1 : Trigonometric functions.

Specify the angle unit before performing calculations. See 1. sinh, cosh, tanh, sinh-1, cosh-1, tanh-1 : Hyperbolic functions.

Input a function from the menu that appears when you press . The angle unit setting does not affect calculations. See 2 . °, r, g : These functions specify the angle unit. ° specifies degrees, r radians, and g grads. Input a function from the menu that appears when you perform the following key operation: (DRG). See 3. , : Exponential functions. Note that the input method is different depending upon whether you are using Natural Display or Linear Display. See 4. log: Logarithmic function. Use the key to input logab as log (a, b). Base key also 10 is the default setting if you do not input anything for a. The can be used for input, but only while Natural Display is selected. In this case, you must input a value for the base.
See 5 . ln: Natural logarithm to base e. See 6. = 3.14159265358980 is used for e : e is displayed as 2.
718281828, but e = 2.71828182845904 is used for x2, x3, x , , , , x-1 : Powers, power roots, and reciprocals. Note , , and are different depending upon that the input methods for x , whether you are using Natural Display or Linear Display. See 7 . Note: The following functions cannot be input in consecutive sequence: x2, x3, x , x-1. If you input 2 , for example, the final will be ignored. To 2 2 , input 2 , press the key, and then press ( ). input 2 Pol, Rec : Pol converts rectangular coordinates to polar coordinates, while Rec converts polar coordinates to rectangular coordinates. See 8 . Pol(x, y) = (r,) Rec(r,) = (x, y) Specify the angle unit before performing calculations.

The calculation result for r and and for x and y are each assigned respectively to variables X and Y. Calculation result is displayed in the range of -180° 180°. Rectangular Coordinates (Rec) Polar Coordinates (Pol) x ! : Factorial function. See 9 . Abs : Absolute value function. Note that the input method is different depending upon whether you are using Natural Display or Linear Display. See 10 . Ran# : Generates a 3-digit pseudo random number that is less than 1. The result is displayed as a fraction when Natural Display is selected. See 11 .

E-18 RanInt# : For input of the function of the form RanInt#(a, b), which generates a random integer within the range of a to b. See 12 . nPr, nCr : Permutation (nPr) and combination (nCr) functions. @@With Norm 1 or Norm 2, the argument is rounded off to 10 digits. With Fix and Sci, the argument is rounded off to the specified digit.
@@@@@See 14 . @@@@@@@@@@@@@@Note: When you want to change the calculation type after entering the STAT Mode, perform the key operation (STAT) (Type) to display the calculation type selection screen. Inputting Data Use the Stat Editor to input data. Perform the following key operation to display the Stat Editor: (STAT) (Data). The Stat Editor provides 80 rows for data input when there is an X column only, 40 rows when there are X and FREQ columns or X and Y columns, or 26 rows when there are X, Y, and FREQ columns.
Note: Use the FREQ (frequency) column to input the quantity (frequency) of identical data items. Display of the FREQ column can be turned on (displayed) or off (not displayed) using the Stat Format setting on the setup menu. 1 To select linear regression and input the following data: (170, 66), (173, 68), (179, 75) STAT (STAT) (A+BX) STAT 170 173 179 STAT 66 68 75 E-21 Important: · All data currently input in the Stat Editor is deleted whenever you exit the STAT Mode, switch between the single-variable and a pairedvariable statistical calculation type, or change the Stat Format setting on the setup menu. · The following operations are not supported by the Stat Editor: , (M), (STO). Pol, Rec, and multi-statements also cannot be input with the Stat Editor. To change the data in a cell: In the Stat Editor, move the cursor to the cell that contains the data you want to change, input the new data, and then press . To delete a line: In the Stat Editor, move the cursor to the line that you want to delete and then press . To insert a line: In the Stat Editor, move the cursor to the location where you want to insert the line and then perform the following key operation: (STAT) (Edit) (Ins). To delete all Stat Editor contents: In the Stat Editor, perform the following key operation: (STAT) (Edit) (Del-A). Obtaining Statistical Values from Input Data To obtain statistical values, press while in the Stat Editor and then recall the statistical variable (x, x2, etc.

) you want. Supported statistical variables and the keys you should press to recall them are shown below. For single-variable statistical calculations, the variables marked with an asterisk (*) are available. Sum: x2*, x*, y2, y, xy, x3, x2y, x4 (STAT) (Sum) to Number of Items: n*, Mean: *, , Population Standard Deviation: x*, y, Sample Standard Deviation: sx*, sy (STAT) (Var) to Minimum Value: minX*, minY, Maximum Value: maxX*, maxY (STAT) (MinMax) to (When the single-variable statistical calculation is selected) (STAT) (MinMax) to (When a paired-variable statistical calculation is selected) Regression Coefficients: A, B, Correlation Coefficient: r, Estimated Values: , (STAT) (Reg) to Regression Coefficients for Quadratic Regression: A, B, C, Estimated Values: 1, 2, (STAT) (Reg) to · See the table at the beginning of this section of the manual for the regression formulas. · , 1, 2 and are not variables. They are commands of the type that take an argument immediately before them. See "Calculating Estimated Values" for more information. 2 To input the single-variable data x = {1, 2, 2, 3, 3, 3, 4, 4, 5}, using the FREQ column to specify the number of repeats for each items ({xn; freqn} = {1;1, 2;2, 3;3, 4;2, 5;1}), and calculate the mean and population standard deviation. E-22 (SETUP) 1 (STAT) (ON) (STAT) (1-VAR) 2 3 4 5 1 2 3 2 (STAT) (STAT) (Var) (Var) () (x) Results: Mean: 3 3 Population Standard Deviation: 1.154700538 To calculate the linear regression and logarithmic regression correlation coefficients for the following paired-variable data and determine the regression formula for the strongest correlation: (x, y) = (20, 3150), (110, 7310), (200, 8800), (290, 9310). Specify Fix 3 (three decimal places) for results. (SETUP) (SETUP) (STAT) (OFF) (Fix) (STAT) (A+BX) 20 110 200 290 3150 7310 8800 9310 (STAT) (STAT) (STAT) (STAT) (STAT) (Reg) (Type) (Reg) (Reg) (Reg) (r) (In X) (r) (A) (B) STAT FIX Results: Linear Regression Correlation Coefficient: 0.923 Logarithmic Regression Correlation Coefficient: 0.998 Logarithmic Regression Formula: y = 3857.984 + 2357.
532lnx Calculating Estimated Values Based on the regression formula obtained by paired-variable statistical calculation, the estimated value of y can be calculated for a given x-value. The corresponding x-value (two values, x1 and x2, in the case of quadratic regression) also can be calculated for a value of y in the regression formula.

4 To determine the estimate value for y when x = 160 in the regression formula produced by logarithmic regression of the data in 3 . Specify Fix 3 for the result. (Perform the following operation after completing the operations in 3 .

) 160 (STAT) (Reg) () Result: 8106.898 Important: Regression coefficient, correlation coefficient, and estimated value calculations can take considerable time when there are a large number of data items. E-23 Creating a Number Table from a Function (TABLE) TABLE generates a number table for x and f(x) using an input f(x) function. Perform the following steps to generate a number table. 1. Press (TABLE) to enter the TABLE Mode. 2. Input a function in the format f(x), using the X variable. · Be sure to input the X variable ((X)) when generating a number table. Any variable other than X is handled as a constant.

· Pol and Rec cannot be input in the function. 3. In response to the prompts that appear, input the values you want to use, pressing after each one. For this prompt: Input this: Start? End? Input the lower limit of X (Default = 1). Input the upper limit of X (Default = 5). Note: Make sure that the End value is always greater than the Start value. Input the increment step (Default = 1). Note: The Step specifies by how much the Start value should be sequentially incremented as the number table is generated. If you specify Start = 1 and Step = 1, X sequentially will be assigned the values 1, 2, 3, 4, and so on to generate the number table until the End value is reached. Step? · Inputting the Step value and pressing generates and displays the number table in accordance with the parameters you specified.

· Pressing while the number table screen is displayed will return to the function input screen in step 2. 1 for the To generate a number table for the function f(x) = x2 + 2 range 1 x 1, incremented in steps of 0.5 (TABLE) (X) 1 2 1 1 0.5 Note: · You can use the number table screen for viewing values only. Table contents cannot be edited.

· The number table generation operation causes the contents of variable X to be changed. Important: The function you input for number table generation is deleted whenever you display the setup menu in the TABLE Mode and switch between Natural Display and Linear Display. E-24 Using VERIFY (VERIF) VERIFY is a function you can use to verify whether an input equality or inequality is true (indicated by TRUE) or false (indicated by FALSE). The following shows the general procedure for using VERIFY. To verify whether 4' = 12 is true 9 1.

Press (VERIF) to enter the VERIFY Mode. Math 2. Input 4' = 12. 9 4 9 (VERIFY) (=)12 · You can select the equality symbol or inequality symbol from the menu that appears when you press (VERIFY). 3. To verify, press . Math You can input the following expressions for verification in the VERIFY Mode. · Equalities or inequalities that include one relational operator 4 = 16, 4 3, 3, 1 + 2 5, (3 × 6) (2 + 6) × 2, etc. · Equalities or inequalities that include multiple relational operators 1 1 1 + 1, 3 4, 22 = 2 + 2 = 4, 2 + 2 = 4 6, 2 + 3 = 5 2 + 5 = 8, etc. Note: · The verification result will cause 1 to be assigned to Ans memory when TRUE and 0 when FALSE.

· The input expression can be a total of 99 bytes, including the left side, right side, and relational operators. · Any variable (A, B, C, D, E, F, X, Y, M) input into an expression is treated as a value, using the value currently assigned to the variable. · Pol and Rec functions cannot be used in an expression. In the VERIFY Mode, the calculator performs a mathematical operation on the input expression and then displays TRUE or FALSE based on the result. Because of this, calculation error can occur or a mathematically correct result may not be able to be displayed when the input calculation expression includes calculation that approaches the singular point or inflection point of a function, or when the input expression contains multiple calculation operations. Expression Input Precautions The following types of expressions cause a Syntax ERROR and cannot be verified. · An expression with nothing on the left side or right side (Example: = 5') 7 · An expression in which a relational operator is inside of a fraction or function (Example: 1 = 1 , cos (8 9)) 2 · An expression in which a relational operator is enclosed in parentheses (Example: 8 (9 10)) E-25 · An expression in which multiple relational operators that are not oriented in the same direction (Example: 5 6 4) · An expression that contains two of the following operators in any combination (Example: 4 6 8) · An expression that contains consecutive relational operators (Example: 5 9) VERIFY Mode Calculation Examples To verify log2 2 3 log3 log4 (VERIF) (VERIFY) () (VERIFY) () 4 3 2 To verify 0 8 (9) (8) 9 0 8 9 (VERIF) (VERIFY) () 8 9 To verify 52 = 25 = 625 (VERIF) 5 (VERIFY) (=) (VERIFY) (=) 625 25 Calculation Ranges, Number of Digits, and Precision The calculation range, number of digits used for internal calculation, and calculation precision depend on the type of calculation you are performing. Calculation Range and Precision Calculation Range Number of Digits for Internal Calculation Precision 1 1099 to 9.999999999 1099 or 0 15 digits In general, 1 at the 10th digit for a single calculation. Precision for exponential display is 1 at the least significant digit. Errors are cumulative in the case of consecutive calculations. Function Calculation Input Ranges and Precision Functions DEG sinx RAD GRA 0 0 0 Input Range x x x 9 1 109 1010 157079632.7 E-26 DEG cosx RAD GRA DEG tanx sin1x cos1x tan1x sinhx coshx sinh1x cosh1x tanhx tanh1x logx/lnx 10x RAD GRA 0 0 0 0 0 0 0 x x x 9 1 109 1010 90. /2. 100.

157079632.7 Same as sinx, except when x = (2n1) Same as sinx, except when x = (2n1) Same as sinx, except when x = (2n1) 1 9.999999999 230.2585092 1099 x x x ex x ' x2 x 1 3 x x! nPr nCr Pol(x, y) Rec(r,) x 4.999999999 1099 1 x 4.

999999999 1099 0 x 9.999999999 1099 0 x 9.999999999 101 0 x 9.999999999 1099 9.999999999 1099 x 99.99999999 9.999999999 1099 x 230.2585092 0 x 1 10100 x 1 1050 x 1 10100 ; x 0 x 1 10100 0 x 69 (x is an integer) 0 n 1 1010, 0 r n (n, r are integers) 1 0 1 {n!/(nr)!} 1 10100 n 1 1010, 0 r n (n, r are integers) n!/r! 1 10100 or 1 n!/(nr)! 1 10100 x , y 9.999999999 1099 x2 + y2 9.999999999 1099 0 9.

999999999 : Same as sinx r 1099 °' '' 1 10100; 0 b, c The display seconds value is subject to an error of 1 at the second decimal place. 1 10100 Decimal Sexagesimal Conversions 0°0 0 x 9999999°59 59 a , b, c x xy x 0: 1 10100 ylogx 100 x = 0: y 0 m x 0: y = n, 2n+1 (m, n are integers) However: 1 10100 ylog x 100 E-27 y ' x y 0: x 0, 1 10100 1/x logy 100 y = 0: x 0 y 0: x = 2n+1, 2n+1 (m 0; m, n are integers) m However: 1 10100 1/x log y 100 Total of integer, numerator, and denominator must be 10 digits or less (including division marks).

a b/c RanInt#(a, b) a b; a , b 1 1010; b a 1 1010 · Precision is basically the same as that described under "Calculation Range and Precision", above. x y, · xy, ' 3 , x!, nPr, nCr type functions require consecutive internal calculation, which can cause accumulation of errors that occur with each calculation. · Error is cumulative and tends to be large in the vicinity of a function's singular point and inflection point. · The range for calculation results that can be displayed in form when using 106. Note, however, that internal calculation error Natural Display is x can make it impossible to display some calculation results in form. It also can cause calculation results that should be in decimal form to appear in form. Errors The calculator will display an error message whenever an error occurs for any reason during a calculation. There are two ways to exit an error message display: Pressing or to display the location of the error, or pressing to clear the message and calculation.

Displaying the Location of an Error While an error message is displayed, press or to return to the calculation screen. The cursor will be positioned at the location where the error occurred, ready for input. Make the necessary corrections to the calculation and execute it again. When you input 14 ÷ 0 2 = by mistake instead of 14 ÷ 10 14 0 2 2= Math (or) 1 Clearing the Error Message While an error message is displayed, press to return to the calculation screen. Note that this also clears the calculation that contained the error.

E-28 Error Messages Math ERROR Cause: · The intermediate or final result of the calculation you are performing exceeds the allowable calculation range. · Your input exceeds the allowable input range (particularly when using functions). · The calculation you are performing contains an illegal mathematical operation (such as division by zero). @@@@@@@@· Try splitting the calculation into two or more parts. Syntax ERROR Cause: There is a problem with the format of the calculation you are performing.

Action: Make necessary corrections. Insufficient MEM Error Cause: The configuration of TABLE Mode parameters caused more than 30 X-values to be generated for a table. Action: Narrow the table calculation range by changing the Start, End, and Step values, and try again. Argument ERROR Cause: A non-integer argument was input for the random number function (RanInt#). @@If one step does not correct the problem, move on to the next step. @@1. @@2. @@3. If the above steps do not correct your problem, press the key. This will cause the calculator to perform a routine that checks whether calculation functions are operating correctly.

If the calculator discovers any abnormality, it automatically initializes the calculation mode and clears memory contents. For details about initialized settings, see "Configuring the Calculator Setup". 4. Initialize all modes and settings by performing the following operation: (CLR) (Setup) (Yes). E-29 Replacing the Battery A low battery is indicated by a dim display, even if contrast is adjusted, or by failure of figures to appear on the display immediately after you turn on the calculator. If this happens, replace the battery with a new one. Important: Removing the battery will cause all of the calculator's memory contents to be deleted. 1. Press (OFF) to turn off the calculator. 2.

Remove the cover as shown in the illustration and replace the battery, taking care that its plus (+) and minus () ends are facing correctly. 3. Replace the cover. 4. Initialize the calculator: (CLR) (All) (Yes) · Do not skip the above step! Screw Screw Screw fx-83GT PLUS fx-85GT PLUS Specifications Power Requirements: fx-83GT PLUS: AAA-size battery R03 (UM-4) 1 fx-85GT PLUS: Built-in solar cell; button battery LR44 (GPA76) 1 Approximate Battery Life: fx-83GT PLUS: 17,000 hours (continuous display of flashing cursor) fx-85GT PLUS: 3 years (based on one hour of operation per day) Power Consumption: 0.

0002 W (fx-83GT PLUS) Operating Temperature: 0°C to 40°C (32°F to 104°F) Dimensions: fx-83GT PLUS: 13.8 (H) 80 (W) 162 (D) mm 1 /2 (H) 31/8 (W) 63/8 (D) fx-85GT PLUS: 11.1 (H) 80 (W) 162 (D) mm 3 /8 (H) 31/8 (W) 63/8 (D) Approximate Weight: fx-83GT PLUS: 100 g (3.5 oz) including the battery fx-85GT PLUS: 95 g (3.4 oz) including the battery Frequently Asked Questions How can I perform input and display results the same way I did on a model that does not have Natural Textbook Display? Perform the following key operation: (SETUP) (LineIO).

See "Configuring the Calculator Setup" on page E-5 for more information. How can I change a fraction form result to decimal form? How can I change a fraction form result produced by a division operation to decimal form? See "Toggling Calculation Results" on page E-13 for the procedure. E-30 What is the difference between Ans memory, independent memory, and variable memory? Each of these types of memory acts like "containers" for temporary storage of a single value. Ans Memory: Stores the result of the last calculation performed. Use this memory to carry the result of one calculation on to the next. Independent Memory: Use this memory to totalize the results of multiple calculations. Variables: This memory is helpful when you need to uses the same value multiple times in one or more calculations. What is the key operation to take me from the STAT Mode or TABLE Mode to a mode where I can perform arithmetic calculations? Press (COMP). How can I return the calculator to its initial default settings? Perform the following operation: (CLR) (Setup) (Yes) When I execute a function calculation, why do I get a calculation result that is completely different from older CASIO calculator models? With a Natural Textbook Display model, the argument of a function that uses parentheses must be followed by a closing parenthesis. Failing to press after the argument to close the parentheses may cause unwanted values or expressions to be included as part of the argument.

Example: (sin 30) + 15 Older (S-VPAM) Model: Natural Textbook Display Model: Failure to press 30 30 30 15 15 15 15.5 15.5 here as shown below will result in calculation of sin 45. 0.7071067812 Manufacturer: CASIO COMPUTER CO., LTD. 6-2, Hon-machi 1-chome Shibuya-ku, Tokyo 151-8543, Japan Responsible within the European Union: CASIO EUROPE GmbH Casio-Platz 1 22848 Norderstedt, Germany This mark applies in EU countries only. SA0909-A .