Casio fx 570ms user manual

This product can still be used safely after cleaning properly. Remove the battery with gloves and clean the battery compartment with a toothbrush and vinegar. Once dry, a new battery can be inserted into the device. Page 2 Products can still be used safely after proper cleaning. Remove the battery with gloves and clean the battery compartment with a toothbrush and vinegar. Once dry, a new battery can be inserted into the device. Page 3 Products can still be used safely after proper cleaning. Remove the battery with gloves and clean the battery compartment with a toothbrush and vinegar. Once dry, a new battery can be inserted into the device. Fx-570MS fx-991MS 2 E User Guide (Additional Functions) Important! Please keep your manual and all useful information for future reference. CASIO ELECTRONICS CO., LTD. Unit 6, 1000 North Circular Road, London NW2 7JD, U.K. Contents Before starting... ..... 3 kModes ..... 3 Calculation of Mathematical Expressions and Editing Functions..... 4 kReplay Copy ..... 4 kCALC Memory..... 5 kSOLVE function ..... 5 Calculation of Scientific Functions..... 6 kInputting Symbol Techniques ..... 6 Calculation of Complex Numbers..... 8 kAbout Value and Calculation Arguments ..... 9 kRectangular Form ↔ Polar Form Display ..... 9 kJugate of Complex Numbers ..... 10 Base-n calculations ..... 10 Statistical Calculations..... 12 Normal Distribution..... 12 Differential Calculation..... 13 Integration Calculation..... 14 Matrix Calculation..... 15 kCreate a Matrix ..... 15 kSeditation Matrix Elements ..... 16 kMatrix Addition, Subtraction, and Multiplication... 16k Counting Scalar Products from Matrix..... 16 kObtaining Matrix Determinants ..... 17 kTransposing Matrix ..... 17 kSing back the Matrix..... 18 kDetermining Absolute Value of Matrix ..... 18 Vector Calculations..... 18 kCreate vectors..... 19k Coming Vector Elements 19 kAdding and Reducing Vectors..... 19k Counting Vector Scalar Products..... 20k Counting Products In From Two Vectors..... 20k Counting Products Beyond Two Vectors..... 21 k Absolute Absolute Determining from Vector ..... 21 Metric conversions..... 22 Scientific Constants..... 23 Power Supply..... 25 Specifications ..... 27 See the fx-95MS/fx-100MS/fx-115MS/fx-570MS/fx-991MS User Guide for details on the following items. Removing and Replacing The Safety Precautions Cover Calculator Handles Two-Line Display Precautions Before starting... (except for Mode) Basic Calculation of Memory Calculation Scientific Function Equation Calculation Calculation Statistical Calculation Technical Information Before starting... kModes Before starting the calculation, you must first enter the correct mode as shown in the table below. •The following table shows the modes and operations required for fx-570MS and fx-991MS. Mode fx-570MS and fx-991MS To do this type To enter calculations: key operations: this mode: Basic Arithmetic Calculation F 1 COMP Complex number F 2 CMPLX Calculation of standard deviation F 1 SD Reg calculationression F F 2 REG Base-n Calculation F F 3 BASE Solution Equation F F F F 1 EQN Matrix Calculation F F F F 2 MAT Vector Calculation F F F 3 VCT •Pressing the F key more than three times displays the additional settings screen. Screen adjustments are described where they are actually used to change calculator settings. • In this manual, the name of the mode you need to enter to perform the calculations described is shown in the main title of each section. Example: CMPLX Calculation Notes Complex Numbers! •To return the calculation mode and settings to the initial default shown below, press A B2(Mode) =. Calculation Mode: COMP Angle Unit: Deg Exponential Display Format: Norm 1, Eng OFF Complex Number Display Format: a+bi Fractional Display Format: Decimal Point character ab/c: Point E-3 •The mode indicator appears at the top of the screen, except for the BASE indicator, which appears in the exponent section of the screen. •The engineering symbol is automatically turned off as long as the calculator is BASE Mode. •You cannot make changes to the angle unit or other display format (Disp) settings when the calculator is in BASE Mode. •COMP, CMPLX, SD, and REG modes can be used in combination with angular unit settings. • Be sure to check the current calculation mode (SD, REG, COMP, CMPLX) and angle unit settings (Deg, Rad, Gra) before starting the calculation. Mathematical Expression Calculation and Editing COMP Function Use the F key to enter COMP Mode when you want to perform mathematical expression calculations or edit expressions. Comp..... The F 1 kReplay Copy Replay copy lets you remember some expressions from the replay so that it connects as a multi-statement on the screen. •Example: Replay memory content: 1 + 1 2 + 2 3 + 3 4 + 4 5 + 5 6 + 6 4 + 4:5 + 5:6 + 6 Use [and]to]to] expression 4 + 4. Press A[(COPY). •You can also edit expressions on the screen and perform other multi-statement operations. For more details about using multi-statements, see Multi-statement in the separate User Guide. • Only expressions in the playback memory start from the current displayed expression and proceed to the last copied expression. Anything before the expression displayed is not copied. •CALC memory lets you temporarily save mathematical expressions that you need to do multiple times using different values. After you save the expression, you can remember it, enter a value for the variable, and calculate the result quickly and easily. • You can save a single mathematical expression, with up to 79 steps. Note that CALC memory can only be used in COMP Mode and CMPLX Mode. •The variable input screen shows the value currently assigned to the variable. •Example: Calculate the result for Y = X2 + 3X – 12 when X = 7 (Result: 58), and when X = 8 (Result: 76). (Enter function.) p yp up xK + 3 p x, 12 (Save expression.) C (Input 7 to X? prompt.) 7 = (Input 8 to X? prompt.) C8 = •Note that the expression you save is cleared every time you start another operation, change to another mode, or turn off the calculator. The solve function kSOLVE function lets you solve an expression using the variable value you want, without the need to change or just the expression. •Example: C is the time it takes for an object to be thrown straight up with the initial speed of A to reach high B. Use the formula below to calculate the initial speed of A for height B = 14 meters and the time of C = 2 seconds. Gravity acceleration is D = 9.8 m/s2. (Result: A = 16.8) B AC – 12 DC 2 p 2 p up 1 - p k , R 1 \ 2 T - p h - p K Al (B?) 14 = (A?)] (C?) 2 = (D?) 9 I 8 = [[(A?) •Because the SOLVE function uses the Newton Method, certain initial values (assumed values) can make it impossible to get a solution. In this case, try inputing another value that you consider close to the solution and perform the calculation again. •The SOLVE function may not be able to obtain a solution, even if there is a solution. • Due to certain idiosyncrasies of the Newton method, solutions for the following types of functions tend to be difficult to calculate. Periodic function (i.e. function y = dosa x) Function whose chart produces a sharp slope (i.e. y = ex, y = 1/x) A periodic function (i.e. y = x) • If the expression does not include an equal sign (=), the SOLVE function generates a solution for expression = 0. Calculation of COMP Scientific Functions Use the F key to enter COMP Mode when you want to perform a calculation of scientific functions. Comp..... F 1 kInputting Engineering Symbols COMP EQN CMPLX •Enabling engineering symbols allows you to use engineering symbols in your calculations. • To and turn off the engineering symbol, press the F key several times until it is the setup screen shown below. D it's p 1 • Press 1. On the engineering symbol settings screen that appears, press the dial key (1 or 2) that corresponds to the setting you want to use. 1(Eng ON): Engineering symbol on (shown by Eng on screen) 2(Eng OFF): Dead engineering symbol (no Eng indicator) • Here are nine symbols that can be used when the engineering symbol is turned on. To enter this symbol: Perform this key operation: Unit k (kilo) Ak 103 M (Mega) AM 106 G (Giga) Ag 109 T (Tera) At 1012 m (milli) Am 10–3 (micro) AN 10–10 6 n (nano) Af 10–9 p (pico) Ap 10–12 f (femto) Af 10–15 •For the values displayed, the calculator selects an engineering symbol that keeps the numerical part of the value in the range of 1 to 1000. •Engineering symbols cannot be used when inserting fractions. •Example: 9 10 = 0.9 m (milli) F ..... 1(Disp) 1 Eng 0. 9 \ 10 = 9 1 m 900. When the engineering symbol is turned on, even the standard calculation results (non-engineering) are displayed using the engineering symbol. Symbol.