ENGLISH

SHARP

SCIENTIFIC CALCULATOR

WriteView

MODEL **EL-W531 EL-W531G EL-W531H EL-W531HA EL-W535**

OPERATION MANUAL

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INTRODUCTION

Thank you for purchasing the SHARP Scientific Calculator Model EL-W531/W531G/W531H/W531HA/W535.
About the **calculation examples (including some formulas and tables)**, refer to the reverse side of this English manual.
Refer to the number on the right of each title in the manual for use.
After reading this manual, store it in a convenient location for future reference.
Notes:
- Some of the models described in this manual may not be available in some countries.
- This product uses a period as a decimal point.

Operational Notes

- Do not carry the calculator around in your back pocket, as it may break when you sit down. The display is made of glass and is particularly fragile.
- Keep the calculator away from extreme heat such as on a car dashboard or near a heater, and avoid exposing it to excessively humid or dusty environments.
- Since this product is not waterproof, do not use it or store it where fluids, for example water, can splash onto it. Raindrops, water spray, juice, coffee, steam, perspiration, etc. will also cause malfunction.
- Clean with a soft, dry cloth. Do not use solvents or a wet cloth.
- Do not drop it or apply excessive force.
- Never dispose of batteries in a fire.
- Keep batteries out of the reach of children.
- This product, including accessories, may change due to upgrading without prior notice.

NOTICE

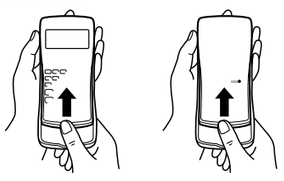
- SHARP strongly recommends that separate permanent written records be kept of all important data. Data may be lost or altered in virtually any electronic memory product under certain circumstances. Therefore, SHARP assumes no responsibility for data lost or otherwise rendered unusable whether as a result of improper use, repairs, defects, battery replacement, use after the specified battery life has expired, or any other cause.
- SHARP will not be liable nor responsible for any incidental or consequential economic or property damage caused by misuse and/or malfunctions of this product and its peripherals, unless such liability is acknowledged by law.

♦ Press the RESET switch (on the back), with the tip of a ball-point pen or similar object, only in the following cases. Do not use an object with a breakable or sharp tip. Note that pressing the RESET switch erases all data stored in memory.
- When using for the first time
- After replacing the battery
- To clear all memory contents
- When an abnormal condition occurs and all keys are inoperative

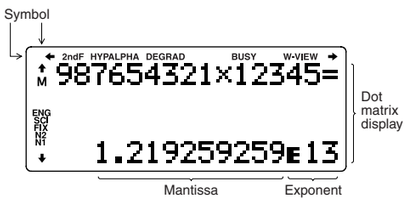
If service should be required on this calculator, use only a SHARP servicing dealer, SHARP approved service facility, or SHARP repair service where available.

Hard Case

Remove the hard case, holding it with your fingers in the positions shown below.



DISPLAY



- During actual use, not all symbols are displayed at the same time.
- Only the symbols required for the usage under instruction are shown in the display and calculation examples of this manual.

←/→: Indicates that some contents are hidden in the ↑/↓ directions shown.

2ndF: Appears when 2ndF is pressed, indicating that the functions shown in orange are enabled.

HYP: Indicates that hyp has been pressed and the hyperbolic functions are enabled. If 2ndF arc hyp is pressed, the symbols "**2ndF HYP**" appear, indicating that inverse hyperbolic functions are enabled.

ALPHA: Indicates that ALPHA, STO or RCL has been pressed, and entry (recall) of memory contents and recall of statistics can be performed.

DEG/RAD/GRAD: Indicates angular units.

BUSY: Appears during the execution of a calculation.

W-VIEW: Indicates that the WriteView editor is selected.

M: Indicates that a numerical value is stored in the independent memory (M).

ENG/SCI/FIX/N2/N1: Indicates the notation used to display a value and changes by SET UP menu. **N1** is displayed on-screen as "NORM1", and **N2** as "NORM2".

BEFORE USING THE CALCULATOR

When using for the first time, press the RESET switch (on the back), with the tip of a ball-point pen or similar object.

Adjusting the Display Contrast

Press SET UP 3, then + or − to adjust the contrast.
Press ON/C to exit.

Power On and Off

Press ON/C to turn the calculator on. The data that was on-screen when the power was turned off will appear on the display.
Press 2ndF OFF to turn it off.

Key Notations Used in this Manual

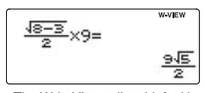
In this manual, key operations are described as follows:

e^x E / ln To specify e^x: 2ndF e^x
To specify ln: ln
To specify E: ALPHA E

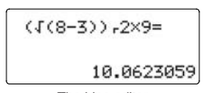
- Functions that are printed in orange above the key require 2ndF to be pressed first before the key. When you specify the memory, press ALPHA first. Numbers for input values are not shown as keys, but as ordinary numbers.
- Functions that are printed in gray adjacent to the keys are effective in specific modes.

The WriteView and Line Editors

This calculator has the following two editors in NORMAL mode: WriteView and Line. You can select between them in the SET UP menu.



The WriteView editor (default)



The Line editor

Note: In certain calculation examples, where you see the LINE symbol, the key operations and calculation results are shown as they would appear in the Line editor.

Clearing the Entry and Memories

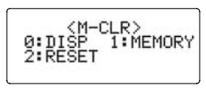
Operation	Entry (Display)	A–F*1, M, X, Y	D1–D4*2	ANS	STAT*3
ON/C	○	×	×	×	×
2ndF CA	○	×	×	○	○
Mode selection (MODE)	○	×	×	×	×*5
2ndF M-CLR 0 *4	○	×	×	×	×
2ndF M-CLR 1 0 *4	○	○	○	○	○
2ndF M-CLR 2 0 *4	○	○	○	○	○
RESET switch	○	○	○	○	○

○: Clear ×: Retain

*1 Press ON/C STO and then choose a memory to clear one variable memory.
*2 Definable memory. See "Memory Calculations".
*3 Statistical data (entered data)
*4 See "Memory clear key".
*5 Cleared when changing between sub-modes in STAT mode.

Memory clear key

Press 2ndF M-CLR to display the menu.



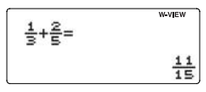
- To initialize the display settings, press 0. The parameters set as follows:
  - Angular unit: DEG
  - Display notation: NORM1
  - N-base: DEC
- To clear all variables and memories (A–F, M, X, Y, D1–D4, ANS, and STAT) at once, press 1 0.
- To RESET the calculator, press 2 0. The RESET operation will erase all data stored in memory and restore the calculator's default settings.

ENTERING, DISPLAYING, AND EDITING THE EQUATION ❶

The WriteView Editor

Entry and display

In the WriteView editor, you can enter and display fractions or certain functions as you would write them.



Notes:
- The WriteView editor can only be used in NORMAL mode.
- If the equation grows too large, it may extend off the edge of the display after you obtain the result. If you want to see the entire equation, press ◄ or ► to return to the editing screen.

Displaying calculation results

When possible, calculation results will be displayed using fractions, √, and π. When you press CHANGE, the display will cycle through the following display styles:
- Mixed fractions (with or without π) → improper fractions (with or without π) → decimal numbers
- Proper fractions (with or without π) → decimal numbers
- Irrational numbers (square roots, fractions made using square roots) → decimal numbers

Notes:
- In the following cases, calculation results may be displayed using √:
  - Arithmetic operations and memory calculations
  - Trigonometric calculations
- In trigonometric calculations, when entering values such as those in the table to the right, results may be shown using √.

	Entry value
DEG	multiples of 15
RAD	multiples of $\frac{1}{12}\pi$
GRAD	multiples of $\frac{50}{3}$

- Calculation results may extend off the edges of the screen. You can see those parts by pressing ◄ or ► (depending on whether the left or right portion is hidden).
- Improper/proper fractions will be converted to and displayed as decimal numbers if the number of digits used in their expression is greater than nine. In the case of mixed fractions, the maximum number of displayable digits (including integers) is eight.
- If the number of digits in the denominator of a fractional result that uses π is greater than three, the result is converted to and displayed as a decimal number.

The Line Editor

Entry and display

In the Line editor, you can enter and display equations line by line.

Notes:
- Up to three lines of text may be viewed on the screen at one time.
- If the length of the equation exceeds three lines, parts of it may be hidden from view after calculation. If you want to see the rest of the equation, press ◄ or ► to return to the editing screen.
- In the Line editor, calculation results are displayed in decimal form.

Editing the Equation

Just after obtaining an answer, pressing ◄ brings you to the end of the equation and pressing ► brings you to the beginning. Press ◄, ►, ▲, or ▼ to move the cursor. Press 2ndF ◄ or 2ndF ► to jump the cursor to the beginning or the end of the equation.
In the WriteView editor, you can use ▲ and ▼ to move the cursor up and down—between the numerator and denominator, for example.

Back space and delete key

To delete a number or function, move the cursor to the right of it, then press BS. You can also delete a number or function that the cursor is directly over by pressing 2ndF DEL.

Multi-line Playback Function ❷

This calculator is equipped with a function to recall previous equations and answers in NORMAL mode. A maximum of 340 characters can be stored in memory. When the memory is full, stored equations will be deleted to make room, starting with the oldest.
Pressing ▲ will display the previous equation. Further pressing ▲ will display preceding equations (after returning to the previous equation, press ▼ to view equations in order). In addition, 2ndF ▲ can be used to jump to the oldest equation, and 2ndF ▼ to jump to the newest one.
- To edit an equation after recalling it, press ◄ or ►.
- The multi-line memory will be cleared by the following operations: 2ndF CA, mode change, RESET, N-base conversion, angular unit conversion, editor change (SET UP 2 0 or SET UP 2 1), and memory clear (2ndF M-CLR 1 0).
- Equations that have one result require an additional eleven characters' worth of memory to store in order to hold the result.
- In addition to the amount of memory needed to store an equation, the WriteView editor will require a certain amount for the sake of display.
- Equations also include calculation ending instructions, such as "=".

Priority Levels in Calculation

This calculator performs operations according to the following priority:
① Fractions (1⌜4, etc.) ② Functions preceded by their argument (x^{-1}, x^2, n!, etc.) ③ y^x, $\sqrt[x]{\ }$ ④ Implied multiplication of a memory value (2Y, etc.) ⑤ Functions followed by their argument (sin, cos, etc.) ⑥ Implied multiplication of a function (2sin 30, A$\frac{1}{4}$, etc.) ⑦ nCr, nPr ⑧ ×, ÷ ⑨ +, − ⑩ AND ⑪ OR, XOR, XNOR ⑫ =, M+, M−, ⇒M, ▶DEG, ▶RAD, ▶GRAD, DATA, CD, →$r\theta$, →xy, and other calculation ending instructions
- If parentheses are used, parenthesized calculations have precedence over any other calculations.

INITIAL SET UP

Mode Selection

NORMAL mode: MODE 0 (default)
Used to perform arithmetic operations and function calculations.

STAT mode: MODE 1
Used to perform statistical operations.

DRILL mode: MODE 2
Used to practice math and multiplication table drills.

SET UP Menu

Press SET UP to display the SET UP menu.

Press ON/C to exit the SET UP menu.

Determination of the angular unit

The following three angular units (degrees, radians, and grads) can be specified.
DEG (°): SET UP 0 0 (default)
RAD (rad): SET UP 0 1
GRAD (g): SET UP 0 2

Selecting the display notation and decimal places ❸

Five display notation systems are used to display calculation results: Two settings of Floating point (NORM1 and NORM2), Fixed decimal point (FIX), Scientific notation (SCI), and Engineering notation (ENG).
- When SET UP 1 0 (FIX) or SET UP 1 2 (ENG) is pressed, "TAB(0–9)?" will be displayed and the number of decimal places (TAB) can be set to any value between 0 and 9.
- When SET UP 1 1 (SCI) is pressed, "SIG(0–9)?" will be displayed and the number of significant digits can be set to any value between 0 and 9. Entering 0 will set a 10-digit display.

Setting the floating point number system in scientific notation

Two settings are used to display a floating-point number: NORM1 (the default) and NORM2. A number is automatically displayed in scientific notation outside a preset range:
- NORM1 (SET UP 1 3): $0.000000001 \le |x| \le 9{,}999{,}999{,}999$
- NORM2 (SET UP 1 4): $0.01 \le |x| \le 9{,}999{,}999{,}999$

Selecting the editor

Two editors are available in NORMAL mode:
- The WriteView editor (W-VIEW): SET UP 2 0 (default)
- The Line editor (LINE): SET UP 2 1

Adjusting the display contrast

Press SET UP 3, then + or − to adjust the contrast.
Press ON/C to exit.

Insert and overwrite entry methods

When using the Line editor, you can change the entry method from "INSERT" (the default) to "OVERWRITE".
After you switch to the overwrite method (by pressing SET UP 4 1), the triangular cursor will change to a rectangular one, and the number or function underneath it will be overwritten as you make entries.

SCIENTIFIC CALCULATIONS

- Press MODE 0 to select NORMAL mode.
- In each example, press ON/C to clear the display first. Unless otherwise specified, calculation examples are performed in the WriteView editor with the default display settings (2ndF M-CLR 0).

Arithmetic Operations ❹

- The closing parenthesis) just before = or M+ may be omitted.

Constant Calculations ❺

- In constant calculations, the addend becomes a constant. Subtraction and division are performed in the same manner. For multiplication, the multiplicand becomes a constant.
- In constant calculations, constants will be displayed as K.

Functions ❻

- Refer to the calculation examples for each function.
- In the Line editor, the following symbols are used:
  - ⌐: to indicate an expression's power. (y^x, 2ndF e^x, 2ndF 10^x)
  - ⌜: to separate integers, numerators, and denominators. (a/b, 2ndF $a^{b}/_{c}$)
- When using 2ndF $\log_a x$ or 2ndF abs in the Line editor, values are entered in the following way:
  - logn (*base, value*)
  - abs *value*

Random Function

The random function has four settings. (This function cannot be selected while using the N-base function.) To generate further random numbers in succession, press ENTER. Press ON/C to exit.

Random numbers

A pseudo-random number, with three significant digits from 0 up to 0.999, can be generated by pressing 2ndF RANDOM 0 ENTER.
Note: In the WriteView editor, the result will be a fraction or 0.

Random dice

To simulate a die-rolling, a random integer between 1 and 6 can be generated by pressing 2ndF RANDOM 1 ENTER.

Random coin

To simulate a coin flip, 0 (heads) or 1 (tails) can be randomly generated by pressing 2ndF RANDOM 2 ENTER.

Random integer

An integer between 0 and 99 can be generated randomly by pressing 2ndF RANDOM 3 ENTER.

Angular Unit Conversions ❼

Each time 2ndF DRG▶ is pressed, the angular unit changes in sequence.

Memory Calculations ❽

Memory calculations can be performed in NORMAL and STAT modes.

Temporary memories (A–F, X and Y)

Press STO and a variable key to store a value in memory.
Press RCL and a variable key to recall the value from that memory. To place a variable in an equation, press ALPHA and a variable key.

Independent memory (M)

In addition to all the features of temporary memories, a value can be added to or subtracted from an existing memory value.
Press ON/C STO M to clear the independent memory (M).

Last answer memory (ANS)

The calculation result obtained by pressing = or any other calculation ending instruction is automatically stored in the last answer memory.

Notes:
- Calculation results from the functions indicated below are automatically stored in the X or Y memories replacing any existing values.
  - →$r\theta$, →xy: X memory (r or x), Y memory (θ or y)
  - Two x' values from a quadratic regression calculation in STAT mode: X memory (1:), Y memory (2:)
- Use of RCL or ALPHA will recall the value stored in memory using up to 14 digits.

Definable memories (D1–D4)

You can store functions or operations in definable memories (D1–D4).
- To store a function or operation, press STO, followed by a definable memory key (D1, D2, D3, or D4), followed by the operation you want to store. Menu-related operations, such as SET UP, cannot be stored. Press ON/C to return to the previous display.
- To call a stored function or operation, press the corresponding memory key. Calling a stored function will do nothing if the function that is called would be unusable in the current context.
- Any functions or operations that are stored in a definable memory will be replaced when you save a new one into that memory.
- When displaying and correcting a data set in STAT mode, you cannot store functions or operations in definable memories.

Chain Calculations ❾

The previous calculation result can be used in the subsequent calculation. However, it cannot be recalled after entering multiple instructions.

Fraction Calculations ❿

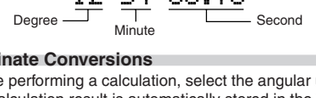
Arithmetic operations and memory calculations can be performed using fractions. In NORMAL mode, conversion between a decimal number and a fraction can be performed by pressing CHANGE.
Notes:
- Improper/proper fractions will be converted to and displayed as decimal numbers if the number of digits used in their expression is greater than nine. In the case of mixed fractions, the maximum number of displayable digits (including integers) is eight.
- To convert a sexagesimal value to a fraction, first convert it by pressing 2ndF ↔DEG.

Binary, Pental, Octal, Decimal, and Hexadecimal Operations (N-base) ⓫

Conversions can be performed between N-base numbers in NORMAL mode. The four basic arithmetic operations, calculations with parentheses, and memory calculations can also be performed, along with the logical operations AND, OR, NOT, NEG, XOR, and XNOR on binary, pental, octal, and hexadecimal numbers.
Conversion to each system is performed with the following keys: 2ndF ◄BIN ("BIN" appears), 2ndF ◄PEN ("PEN" appears), 2ndF ◄OCT ("OCT" appears), 2ndF ◄HEX ("HEX" appears), 2ndF ◄DEC ("BIN", "PEN", "OCT", and "HEX" disappear)
Note: The hexadecimal numbers A–F are entered by pressing y^x (A), √ (B), x^2 (C), log (D), ln (E), and (x,y) (F).
In the binary, pental, octal, and hexadecimal systems, fractional parts cannot be entered. When a decimal number having a fractional part is converted into a binary, pental, octal, or hexadecimal number, the fractional part will be truncated. Likewise, when the result of a binary, pental, octal, or hexadecimal calculation includes a fractional part, the fractional part will be truncated. In the binary, pental, octal, and hexadecimal systems, negative numbers are displayed as a complement.

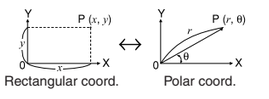
Time, Decimal, and Sexagesimal Calculations ⓬

Conversion between decimal and sexagesimal numbers can be performed. In addition, the four basic arithmetic operations and memory calculations can be performed using the sexagesimal system. Notation for sexagesimal is as follows:



Coordinate Conversions ⓭

- Before performing a calculation, select the angular unit.
- The calculation result is automatically stored in the X and Y memories (r or x in X memory, and θ or y in Y memory).
- The results of coordinate conversions will be displayed as decimal numbers even in the WriteView editor.



Rectangular coord. ↔ Polar coord.

Modify Function ⓮

Decimal calculation results are internally obtained in scientific notation, with up to 14 digits in the mantissa. However, since calculation results are displayed in the form designated by the display notation and the number of decimal places indicated, the internal calculation result may differ from that shown in the display. By using the modify function (2ndF MDF), the internal value is converted to match that of the display, so that the displayed value can be used without change in subsequent operations.
- When using the WriteView editor, if the calculation result is displayed using fractions or irrational numbers, press CHANGE to convert it to decimal form first.

STATISTICAL CALCULATIONS

Statistical calculations can be performed in STAT mode. There are eight sub-modes within STAT mode. Press MODE 1, then press the number key that corresponds to your choice:
0 (Stat 0 [SD]): Single-variable statistics
1 (Stat 1 [LINE]): Linear regression
2 (Stat 2 [QUAD]): Quadratic regression
3 (Stat 3 [E_EXP]): Euler exponential regression
4 (Stat 4 [LOG]): Logarithmic regression
5 (Stat 5 [POWER]): Power regression
6 (Stat 6 [INV]): Inverse regression
7 (Stat 7 [G_EXP]): General exponential regression

Statistical Calculations and Variables ⓯

The following statistics can be obtained for each statistical calculation (refer to the table below):

Single-variable statistical calculation

Statistics of ①.

Linear regression calculation

Statistics of ① and ②. In addition, the estimate of y for a given x (estimate y') and the estimate of x for a given y (estimate x').

Quadratic regression calculation

Statistics of ① and ②, and coefficients a, b, c in the quadratic regression formula ($y = a + bx + cx^2$). (For quadratic regression calculations, no correlation coefficient (r) can be obtained.) When there are two x' values, each value will be displayed with "1:" or "2:", and stored separately in the X and Y memories.

Euler exponential regression, logarithmic regression, power regression, inverse regression, and general exponential regression calculations

Statistics of ① and ②. In addition, the estimate of y for a given x and the estimate of x for a given y. (Since the calculator converts each formula into a linear regression formula before actual calculation takes place, it obtains all statistics, except coefficients a and b, from converted data rather than entered data.)

①	$\bar{x}$	Mean of samples (x data)
	sx	Sample standard deviation (x data)
	σx	Population standard deviation (x data)
	n	Number of samples
	Σx	Sum of samples (x data)
	Σx^2	Sum of squares of samples (x data)
②	$\bar{y}$	Mean of samples (y data)
	sy	Sample standard deviation (y data)
	σy	Population standard deviation (y data)
	Σy	Sum of samples (y data)
	Σy^2	Sum of squares of samples (y data)
	Σxy	Sum of products of samples (x, y)
	r	Correlation coefficient
	a	Coefficient of regression equation
	b	Coefficient of regression equation
	c	Coefficient of quadratic regression equation

- Use ALPHA and RCL to perform a variable calculation in STAT mode.
- CHANGE does not function in STAT mode.

Data Entry and Correction ⓰

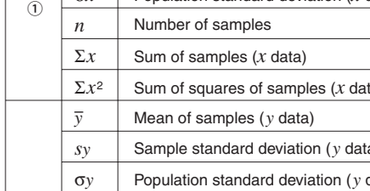
Before entering new data, clear the memory contents.

Data entry

Single-variable data
Data DATA
Data (x,y) *frequency* DATA (To enter multiples of the same data)
Two-variable data
Data x (x,y) *data y* DATA
Data x (x,y) *data y* (x,y) *frequency* DATA (To enter multiples of the same data x and y)
Note: Up to 100 data items can be entered. With the single-variable data, a data item without frequency assignment is counted as one data item, while an item assigned with frequency is stored as a set of two data items. With the two-variable data, a set of data items without frequency assignment is counted as two data items, while a set of items assigned with frequency is stored as a set of three data items.

Data correction

Correction before pressing DATA immediately after a data entry:
Delete incorrect data with ON/C, then enter the correct data.
Correction after pressing DATA:
Use ▲ and ▼ to display the previously entered data set. Press ▼ to display the data set in ascending (oldest first) order. To reverse the display order to descending (latest first), press the ▲ key. Press 2ndF ▲ or 2ndF ▼ to jump the cursor to the beginning or end of the data set.
Each data set is displayed with "X:", "Y:", or "F:".



Display and move the cursor to the data item to be modified by using ▲ and ▼, input the correct value, then press DATA or ENTER.
- To delete a data set, display and move the cursor to an item of the data set to delete by using ▲ and ▼, then press 2ndF CD. The data set will be deleted.
- To add a new data set, press ON/C to exit the display of previously entered data and input the values, then press DATA.

Statistical Calculation Formulas ⓱

Type	Regression formula
Linear	$y = a + bx$
Quadratic	$y = a + bx + cx^2$
Euler exponential	$y = a \cdot e^{bx}$
Logarithmic	$y = a + b \cdot \ln x$
Power	$y = a \cdot x^b$
Inverse	$y = a + b\frac{1}{x}$
General exponential	$y = a \cdot b^x$

An error will occur when:
- The absolute value of the intermediate result or calculation result is equal to or greater than 1×10^{100}.
- The denominator is zero.
- An attempt is made to take the square root of a negative number.
- No solution exists in the quadratic regression calculation.

DRILL MODE

Math Drill: MODE 2 0
Math operation questions with positive integers and 0 are displayed randomly. It is possible to select the number of questions and operator type.

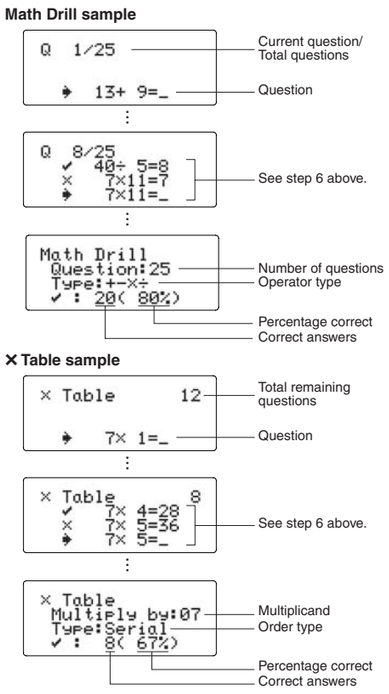
Multiplication Table (× Table): MODE 2 1
Questions from each row of the multiplication table (1 to 12) are displayed serially or randomly.

To exit DRILL mode, press MODE and select another mode.

Using Math Drill and × Table

1. Press MODE 2 0 for Math Drill or MODE 2 1 for × Table.
2. **Math Drill**: Use ▲ and ▼ to select the number of questions (25, 50, or 100).
   × Table: Use ▲ and ▼ to select a row in the multiplication table (1 to 12).
3. **Math Drill**: Use ◄ and ► to select the operator type for questions (+, −, ×, ÷, or +−×÷).
   × Table: Use ◄ and ► to select the order type ("Serial" or "Random").
4. Press ENTER to start.
   When using Math Drill or × Table (random order only), questions are randomly selected and will not repeat except by chance.
5. Enter your answer. Press ON/C or BS to clear the entered number and then enter the correct answer.
6. Press ENTER.
   - If the answer is correct, "✔" appears and the next question is displayed.
   - If the answer is wrong, "✘"appears and the same question is displayed. This will be regarded as an incorrect answer.
   - If you press ENTER without entering an answer, the correct answer is displayed and then the next question is displayed. This will be regarded as an incorrect answer.
7. Continue answering the series of questions by entering the answer and pressing ENTER.
8. After you finish, press ENTER and the number and percentage of correct answers are displayed.
9. Press ENTER to return to the initial screen for your current drill.

Math Drill sample



× Table sample

Ranges of Math Drill Questions

The range of questions for each operator type is as follows.
+ **Addition operator**: "0 + 0" to "20 + 20"
− **Subtraction operator**: "0 − 0" to "20 − 20"; answers are positive integers and 0.
× **Multiplication operator**: "1 × 0" or "0 × 1" to "12 × 12"
÷ **Division operator**: "0 ÷ 1" to "144 ÷ 12"; answers are positive integers from 1 to 12 and 0, dividends of up to 144, and divisors of up to 12.
+−×÷ **Mixed operators**: Questions within all the above ranges are displayed.

ERRORS AND CALCULATION RANGES

Errors

An error will occur if an operation exceeds the calculation ranges, or if a mathematically illegal operation is attempted. When an error occurs, pressing ◄ or ► automatically moves the cursor back to the place in the equation where the error occurred. Edit the equation or press ON/C to clear the equation.

Error codes and error types

ERROR 01: Syntax error
- An attempt was made to perform an invalid operation.
  Ex. 2 + − 5 =

ERROR 02: Calculation error
- The absolute value of an intermediate or final calculation result equals or exceeds 10^{100}.
- An attempt was made to divide by zero (or an intermediate calculation resulted in zero).
- The calculation ranges were exceeded while performing calculations.

ERROR 03: Nesting error
- The available number of buffers was exceeded. (There are 10 buffers for numeric values and 64 buffers for calculation instructions).

ERROR 04: Data over
- Data items exceeded 100 in STAT mode.

Alert Messages ⓰

Cannot delete!
- The selected item cannot be deleted by pressing BS or 2ndF DEL in the WriteView editor.
  Ex. √ 5 ► x^2 ◄ BS
  In this example, delete the exponent before attempting to delete the parentheses.

Cannot call!
- The function or operation stored in definable memory (D1 to D4) cannot be called.
  Ex. An attempt was made to recall a statistical variable from within NORMAL mode.

Buffer full!
- The equation (including any calculation ending instructions) exceeded its maximum input buffer (159 characters in the WriteView editor or 161 characters in the Line editor). An equation may not exceed its maximum input buffer.

Calculation Ranges ⓳

- **Within the ranges specified, this calculator is accurate to ±1 of the 10th digit of the mantissa. However, a calculation error increases in continuous calculations due to accumulation of each calculation error. (This is the same for y^x, $\sqrt[x]{\ }$, n!, e^x, ln, etc., where continuous calculations are performed internally.)**
  Additionally, a calculation error will accumulate and become larger in the vicinity of inflection points and singular points of functions.
- Calculation ranges
  $\pm 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$ and 0.
  If the absolute value of an entry or a final or intermediate result of a calculation is less than 10^{-99}, the value is considered to be 0 in calculations and in the display.

Display of results using √

Calculation results may be displayed using √ when all of the following conditions are met:
- When intermediate and final calculation results are displayed in the following form:
  $\pm\frac{a\sqrt{b}}{e} \pm \frac{c\sqrt{d}}{f}$
- When each coefficient falls into the following ranges:
  $1 \le a < 100$; $1 < b < 1{,}000$; $0 \le c < 100$;
  $1 \le d < 1{,}000$; $1 \le e < 100$; $1 \le f < 100$
- When the number of terms in the intermediate and final calculation results is one or two.

Note: The result of two fractional terms that include √ will be reduced to a common denominator.

BATTERY REPLACEMENT

Notes on Battery Replacement

Improper handling of batteries can cause electrolyte leakage or explosion. Be sure to observe the following handling rules:
- Make sure the new battery is the correct type.
- When installing, orient the battery properly as indicated in the calculator.
- The battery is factory-installed before shipment, and may be exhausted before it reaches the service life stated in the specifications.

Notes on erasure of memory contents

When the battery is replaced, the memory contents are erased. Erasure can also occur if the calculator is defective or when it is repaired. Make a note of all important memory contents in case accidental erasure occurs.

When to Replace the Battery

EL-W531/W531H/W531HA/W535: If the display has poor contrast even after adjusting the display contrast, the battery requires replacement.
EL-W531G: If the display has poor contrast or nothing appears on the display when ON/C is pressed in dim lighting, even after adjusting the display contrast, it is time to replace the battery.

Cautions

- Fluid from a leaking battery accidentally entering an eye could result in serious injury. Should this occur, wash with clean water and immediately consult a doctor.
- Should fluid from a leaking battery come in contact with your skin or clothes, immediately wash with clean water.
- If the product is not to be used for some time, to avoid damage to the unit from a leaking battery, remove it and store in a safe place.
- Do not leave an exhausted battery inside the product.
- Keep batteries out of the reach of children.
- An exhausted battery left in the calculator may leak and damage the calculator.
- Explosion risk may be caused by incorrect handling.
- Do not throw batteries into a fire as they may explode.

Replacement Procedure

1. Turn the power off by pressing 2ndF OFF.
2. Remove the two screws. (Fig. 1)
3. Slide the battery cover slightly and lift it to remove.
4. **EL-W531/W531G/W535**: Remove the used battery by prying it out with a ball-point pen or other similar pointed device. (Fig. 2)
   EL-W531H/W531HA: Remove the used battery.
5. **EL-W531/W531G/W535**: Install one new battery. Make sure the "+" side is facing up.
   EL-W531H/W531HA: Install one new battery. First insert the "−" side toward the spring. (Fig. 3)
6. Replace the cover and screws.
7. Press the RESET switch (on the back) with the tip of a ball-point pen or similar object.
8. Adjust the display contrast. See "Adjusting the Display Contrast".
- Make sure that the display appears as shown below. If the display does not appear as shown, remove the battery, reinstall it, and check the display once again.

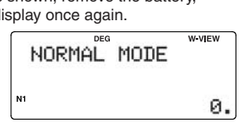
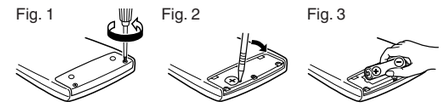


Fig. 1 Fig. 2 Fig. 3



Automatic Power Off Function

This calculator will turn itself off to save battery power if no key is pressed for approximately 10 minutes.

SPECIFICATIONS

Calculation features:	Scientific calculations, statistical calculations, etc.
Drill features:	Math Drill and Multiplication Table
Display:	96 × 32 dot matrix liquid crystal display
Display of calculation results:	Mantissa: 10 digits Exponent: 2 digits
Internal calculations:	Mantissas of up to 14 digits
Pending operations:	64 calculations 10 numeric values
Power source:	**EL-W531/W535** 1.5 V ⎓ (DC): Alkaline battery (LR44 or equivalent) × 1 **EL-W531G** Built-in solar cells 1.5 V ⎓ (DC): Backup battery (Alkaline battery (LR44 or equivalent) × 1) **EL-W531H/W531HA** 1.5 V ⎓ (DC): Heavy duty manganese battery (size AAA or R03) × 1
Power consumption:	**EL-W531/W531H/W531HA/W535** 0.00011 W
Operating time: (varies according to use and other factors)	**EL-W531/W535** Approx. 3,000 hours when continuously displaying 55555. at 25°C (77°F) **EL-W531G** Approx. 3,000 hours when continuously displaying 55555. at 25°C (77°F), using the alkaline battery only **EL-W531H/W531HA** Approx. 17,000 hours when continuously displaying 55555. at 25°C (77°F)
Operating temperature:	0°C–40°C (32°F–104°F)
External dimensions:	79.6 mm (W) × 161.5 mm (D) × 15.5 mm (H) 3-1/8" (W) × 6-11/32" (D) × 5/8" (H)
Weight:	**EL-W531/W535** Approx. 100 g (0.22 lb) (including battery) **EL-W531G** Approx. 102 g (0.23 lb) (including battery) **EL-W531H/W531HA** Approx. 107 g (0.24 lb) (including battery)
Accessories:	Battery × 1 (installed), operation manual, and hard case

FOR MORE INFORMATION ABOUT SCIENTIFIC CALCULATORS

Visit our Web site.
http://sharp-world.com/calculator/

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+ − × ÷ **ENGLISH**

WriteView

EL-W531
EL-W531G
EL-W531H
EL-W531HA
EL-W535

CALCULATION EXAMPLES
ANWENDUNGSBEISPIELE
EXEMPLES DE CALCUL
EJEMPLOS DE CÁLCULO
EXEMPLOS DE CÁLCULO
ESEMPI DI CALCOLO
REKENVOORBEELDEN
PÉLDASZÁMÍTÁSOK
PŘÍKLADY VÝPOČTŮ
RÄKNEEXEMPEL
LASKENTAESIMERKKEJÄ
UDREGNINGSEKSEMPLER
ตัวอย่างการคำนวณ
نماذج للحسابات
CONTOH-CONTOH PERHITUNGAN

1

CHANGE

$\frac{2}{5}+\frac{3}{4}=$	ON/C 2 a/b 5 ▶ + a/b 3 ▶ 4 =	$1\frac{3}{20}$
	CHANGE	$\frac{23}{20}$
	CHANGE	1.15
	CHANGE	$1\frac{3}{20}$
$\sqrt{3}\times\sqrt{5}=$	√ 3 ▶ × √ 5 =	$\sqrt{15}$
	CHANGE	3.872983346
$\sqrt{2}\div3+\sqrt{5}\div5=$	√ 2 ▶ ÷ 3 + √ 5 ▶ ÷ 5 =	$\frac{3\sqrt{5}+5\sqrt{2}}{15}$
	CHANGE	0.918618116
$\sin45=$	sin 45 =	$\frac{\sqrt{2}}{2}$
	CHANGE	0.707106781
$2\cos^{-1}0.5$ [rad] =	SET UP 0 1 2 2ndF cos⁻¹ 0.5 =	$\frac{2}{3}\pi$
	CHANGE	2.094395102

2

▲ ▼

	2ndF CA	0.
① $3(5+2)=$	3 (5 + 2) =	21.
② $3\times5+2=$	3 × 5 + 2 =	17.
③ $(5+3)\times2=$	(5 + 3) × 2 =	16.
→ ①	2ndF ▲	21.
→ ②	▼	17.
→ ③	▼	16.
→ ②	▲	17.

3

SET UP

LINE
$100000\div3=$

[NORM1]	ON/C 100000 ÷ 3 =	33'333.33333
→ [FIX: TAB 2]	SET UP 1 0 2	33'333.33
→ [SCI: SIG 2]	SET UP 1 1 2	3.3E04
→ [ENG: TAB 2]	SET UP 1 2 2	33.33E03
→ [NORM1]	SET UP 1 3	33'333.33333

4

( ) × ÷ ( ) (−) Exp

$45+285\div3=$	ON/C 45 + 285 ÷ 3 =	140.
$\frac{18+6}{15-8}=$	(18 + 6) ÷ (15 − 8 =	$3\frac{3}{7}$
$42\times-5+120=$	42 × (−) 5 + 120 =	-90
$(5\times10^3)\div(4\times10^{-3})=$	5 Exp 3 ÷ 4 Exp (−) 3 =	1'250'000.

5

$34+57=$	34 + 57 =	91.
$45+57=$	45 =	102.
$68\times25=$	68 × 25 =	1'700.
$68\times40=$	40 =	2'720.

6

sin cos tan $\sin^{-1}$ $\cos^{-1}$ $\tan^{-1}$ π hyp arc hyp
ln log $\log_a x$ e^x e 10^x x^{-1} x^2 x^3
√ y^x $\sqrt[x]{}$ $\sqrt[3]{}$ n! $_nP_r$ $_nC_r$ % abs
(x,y)

	2ndF M-CLR 0	0.
$\sin60$ [°] =	ON/C sin 60 =	$\frac{\sqrt{3}}{2}$
	CHANGE	0.866025403
$\cos\frac{\pi}{4}$ [rad] =	SET UP 0 1 cos π a/b 4 =	$\frac{\sqrt{2}}{2}$
	CHANGE	0.707106781
$\tan^{-1}1$ [g] =	SET UP 0 2 2ndF tan⁻¹ 1 =	50.
	SET UP 0 0	
$(\cosh1.5+\sinh1.5)^2=$	ON/C (hyp cos 1.5 + hyp sin 1.5) x^2 =	20.08553692
$\tanh^{-1}\frac{5}{7}=$	2ndF arc hyp tan (5 ÷ 7) =	0.895879734
$\ln20=$	ln 20 =	2.995732274
$\log50=$	log 50 =	1.698970004
$\log_2 16384=$	2ndF $\log_a x$ 2 ▶ 16384 =	14.
LINE	2ndF $\log_a x$ 2 (x,y) 16384) =	14.
$e^3=$	2ndF e^x 3 =	20.08553692
$1\div e=$	1 ÷ ALPHA e =	0.367879441
$10^{1.7}=$	2ndF 10^x 1.7 =	50.11872336
$\frac{1}{6}+\frac{1}{7}=$	6 2ndF x^{-1} + 7 2ndF x^{-1} =	$\frac{13}{42}$
	CHANGE	0.309523809
$8^{-2}-3^4\times5^2=$	8 y^x (−) 2 ▶ − 3 y^x 4 ▶ × 5 x^2 =	$-2024\frac{63}{64}$
	CHANGE	$-\frac{129599}{64}$
	CHANGE	-2'024.984375
LINE	8 y^x (−) 2 − 3 y^x 4 × 5 x^2 =	-2'024.984375
	CHANGE	-2024r63r64
	CHANGE	-129599r64

7

DRG▶

90° → [rad]	ON/C 90 2ndF DRG▶	$\frac{1}{2}\pi$
→ [g]	2ndF DRG▶	100.
→ [°]	2ndF DRG▶	90.
$\sin^{-1}0.8$ = [°]	2ndF $\sin^{-1}$ 0.8 =	53.13010235
→ [rad]	2ndF DRG▶	0.927295218
→ [g]	2ndF DRG▶	59.03344706
→ [°]	2ndF DRG▶	53.13010235

8

ALPHA RCL STO M+ M− ANS D1 D2 D3 D4

$8\times2\Rightarrow M$	ON/C 8 × 2 STO M	16.
$24\div(8\times2)=$	24 ÷ ALPHA M =	$1\frac{1}{2}$
$(8\times2)\times5=$	ALPHA M × 5 =	80.

9

$6+4=$ ANS	ON/C 6 + 4 =	10.
ANS + 5 =	+ 5 =	15.
$8\times2=$ ANS	8 × 2 =	16.
$ANS^2=$	x^2 =	256.
$44+37=$ ANS	44 + 37 =	81.
$\sqrt{ANS}=$	√ =	9.

10

a/b $a^{b/c}$

$3\frac{1}{2}+\frac{4}{3}=$	ON/C 3 2ndF $a^{b/c}$ 1 ▼ 2 ▶ + a/b 4 ▼ 3 =	$4\frac{5}{6}$
	CHANGE	$\frac{29}{6}$
	CHANGE	4.833333333
LINE	3 a/b 1 a/b 2 + 4 a/b 3 =	4r5r6*
	CHANGE	29r6
	CHANGE	4.833333333
$10^{\frac{2}{3}}=$	2ndF 10^x 2 a/b 3 =	4.641588834
$\left(\frac{7}{5}\right)^5=$	7 a/b 5 ▶ y^x 5 =	$\frac{16807}{3125}$
LINE	7 a/b 5 y^x 5 =	16807r3125
$\sqrt[3]{\frac{1}{8}}=$	2ndF $\sqrt[3]{}$ 1 a/b 8 =	$\frac{1}{2}$
$\sqrt{\frac{64}{225}}=$	√ 64 a/b 225 =	$\frac{8}{15}$
$\frac{2^3}{3^4}=$	2 2ndF x^3 a/b 3 y^x 4 =	$\frac{8}{81}$
LINE	2 2ndF x^3 a/b (3 y^x 4) =	8r81
$\frac{1.2}{2.3}=$	1.2 a/b 2.3 =	$\frac{12}{23}$
$\frac{1°2'3"}{2}=$	1 °'" 2 °'" 3 a/b 2 =	0°31'1.5"
$\frac{1\times10^3}{2\times10^3}=$	1 Exp 3 a/b 2 Exp 3 =	$\frac{1}{2}$
7 ⇒ A	ON/C 7 STO A	7.
$\frac{4}{A}=$	4 a/b ALPHA A =	$\frac{4}{7}$

$0\Rightarrow M$	ON/C STO M	0.
$\$150\times3\Rightarrow M_1$	150 × 3 M+	450.
+) $\$250: M_1+250\Rightarrow M_2$	250 M+	250.
−) $M_2\times5\%$	RCL M × 5 2ndF % 2ndF M−	35.
M =	RCL M	665.
$\$1=¥110$ (110 ⇒ Y)	110 STO Y	110.
$¥26{,}510=\$?$	26510 ÷ RCL Y =	241.
$\$2{,}750=¥?$	2750 × RCL Y =	302'500.
r = 3 cm (r ⇒ Y)	3 STO Y	3.
$\pi r^2=?$	π ALPHA Y x^2 = CHANGE	28.27433388
$\frac{24}{4+6}=2\frac{2}{5}\ldots(A)$	24 ÷ (4 + 6) =	$2\frac{2}{5}$
$3\times(A)+60\div(A)=$	3 × ALPHA ANS + 60 ÷ ALPHA ANS =	$32\frac{1}{5}$
$\sinh^{-1}\Rightarrow$ D1	STO D1 2ndF arc hyp sin	
$\sinh^{-1}0.5=$	D1 0.5 =	0.481211825

11

▶BIN ▶PEN ▶OCT ▶HEX ▶DEC NEG NOT AND OR XOR XNOR

DEC (25) → BIN	ON/C 2ndF ▶DEC 25 2ndF ▶BIN	BIN	11001
HEX (1AC)	2ndF ▶HEX 1AC		
→ BIN	2ndF ▶BIN	BIN	110101100
→ PEN	2ndF ▶PEN	PEN	3203
→ OCT	2ndF ▶OCT	OCT	654
→ DEC	2ndF ▶DEC		428.
(1010 − 100) × 11 = [BIN]	2ndF ▶BIN (1010 − 100) × 11 =	BIN	10010
BIN (111) → NEG	NEG 111 =	BIN	1111111001
HEX (1FF) + OCT (512) =	2ndF ▶HEX 1FF 2ndF ▶OCT + 512 =	OCT	1511
HEX (?)	2ndF ▶HEX	HEX	349
2FEC − 2C9E ⇒ M_1	ON/C STO M 2ndF ▶HEX 2FEC − 2C9E M+	HEX	34E
+) 2000 − 1901 ⇒ M_2	2000 − 1901 M+	HEX	6FF
M =	RCL M ON/C STO M	HEX	A4D
1011 AND 101 = [BIN]	2ndF ▶BIN 1011 AND 101 =	BIN	1
5A OR C3 = [HEX]	2ndF ▶HEX 5A OR C3 =	HEX	DB
NOT 10110 = [BIN]	2ndF ▶BIN NOT 10110 =	BIN	1111101001
24 XOR 4 = [OCT]	2ndF ▶OCT 24 XOR 4 =	OCT	20
B3 XNOR 2D = [HEX]	2ndF ▶HEX B3 XNOR 2D =	HEX	FFFFFFF61
→ DEC	2ndF ▶DEC		-159.

12

D°M'S ↔DEG

7°31'49.44" → [10]	ON/C 7 D°M'S 31 D°M'S 49.44 2ndF ↔DEG		$7\frac{663}{1250}$
123.678 → [60]	123.678 2ndF ↔DEG		123°40'40.8"
3h 30m 45s + 6h 45m 36s = [60]	3 D°M'S 30 D°M'S 45 + 6 D°M'S 45 D°M'S 36 =		10°16'21."
1234°56'12" + 0°0'34.567" = [60]	1234 D°M'S 56 D°M'S 12 + 0 D°M'S 0 D°M'S 34.567 =		1234°56'47."
3h 45m − 1.69h = [60]	3 D°M'S 45 − 1.69 = 2ndF ↔DEG		2°3'36."
$\sin62°12'24"$ = [10]	sin 62 D°M'S 12 D°M'S 24 =		0.884635235

13

→rθ →xy (x,y)

$\begin{pmatrix}x=6\\y=4\end{pmatrix}\rightarrow\begin{pmatrix}r=\\\theta=[°]\end{pmatrix}$	ON/C 6 (x,y) 4 2ndF →rθ	r: θ:	7.211102551 33.69006753
$\begin{pmatrix}r=14\\\theta=36[°]\end{pmatrix}\rightarrow\begin{pmatrix}x=\\y=\end{pmatrix}$	14 (x,y) 36 2ndF →xy	X: Y:	11.32623792 8.228993532

14

MDF SET UP

→ [FIX, TAB = 1]	ON/C SET UP 1 0 1	0.0
$5\div9=$ ANS	5 ÷ 9 =	$\frac{5}{9}$
	CHANGE	0.6
ANS × 9 =	× 9 = *1	5.0
	5 ÷ 9 =	$\frac{5}{9}$
	CHANGE	0.6
→ [MDF]	2ndF MDF	$\frac{3}{5}$
ANS × 9 =	× 9 = *2	$5\frac{2}{5}$
	CHANGE CHANGE	5.4
→ [NORM1]	SET UP 1 3	5.4

*1 $\frac{5}{9}\times9=5.5555555555555\times10^{-1}\times9$

*2 $\frac{3}{5}\times9=0.6\times9$

15

DATA (x,y) $\bar{x}$ sx σx n Σx Σx^2 $\bar{y}$ sy σy Σy Σy^2 Σxy r a b c x' y'

DATA x	DATA y
95	
80	
80	
75	
75	
75	
50	

MODE 1 0 2ndF CA — Stat 0 [SD] — 0.

95 DATA	DATA SET=	1.
80 DATA	DATA SET=	2.
DATA	DATA SET=	3.
75 (x,y) 3 DATA	DATA SET=	4.
50 DATA	DATA SET=	5.
RCL $\bar{x}$	$\bar{x}$=	75.71428571
RCL σx	σx=	12.37179148
RCL n	n=	7.
RCL Σx	Σx=	530.
x^2 =	Σx²=	41'200.
RCL sx	sx=	13.3630621
x^2 =	sx^2=	178.5714286

$\frac{(95-\bar{x})}{sx}\times10+50=$ (95 − ALPHA $\bar{x}$) ÷ ALPHA sx × 10 + 50 = → 64.43210706

DATA x	DATA y
2	5
2	5
12	24
21	40
21	40
21	40
15	25

MODE 1 1 — Stat 1 [LINE] — 0.

2 (x,y) 5 DATA	DATA SET=	1.
DATA	DATA SET=	2.
12 (x,y) 24 DATA	DATA SET=	3.
21 (x,y) 40 (x,y) 3 DATA	DATA SET=	4.
15 (x,y) 25 DATA	DATA SET=	5.
RCL a	a=	1.050261097
RCL b	b=	1.826044386
RCL r	r=	0.995176343
RCL sx	sx=	8.541216597
RCL sy	sy=	15.67223812
$x=3\rightarrow y'=?$ 3 2ndF y'	$3y'$	6.528394256
$y=46\rightarrow x'=?$ 46 2ndF x'	$46x'$	24.61590706

16

DATA (x,y) ▲ ▼ CD

DATA x	DATA y
20	
30	
40	
40	
50	

MODE 1 0 — Stat 0 [SD] — 0.

20 DATA	DATA SET=	1.
30 DATA	DATA SET=	2.
40 (x,y) 2 DATA	DATA SET=	3.
50 DATA	DATA SET=	4.

↓

DATA x	DATA y
30	
45	
45	
45	
60	

▼ 2ndF CD	DATA SET=	3.
▼ ▼ ▼ 45 DATA	X:	45.
3 DATA	F:■	3.
▼ 60 DATA	X:	60.

17

$\bar{x}=\frac{\Sigma x}{n}$ $\quad \sigma x=\sqrt{\frac{\Sigma x^2-n\bar{x}^2}{n}}$

$sx=\sqrt{\frac{\Sigma x^2-n\bar{x}^2}{n-1}}$ $\quad \Sigma x=x_1+x_2+\cdots+x_n$ $\quad \Sigma x^2=x_1^2+x_2^2+\cdots+x_n^2$

$\bar{y}=\frac{\Sigma y}{n}$ $\quad \sigma y=\sqrt{\frac{\Sigma y^2-n\bar{y}^2}{n}}$

$sy=\sqrt{\frac{\Sigma y^2-n\bar{y}^2}{n-1}}$ $\quad \Sigma xy=x_1y_1+x_2y_2+\cdots+x_ny_n$ $\quad \Sigma y=y_1+y_2+\cdots+y_n$ $\quad \Sigma y^2=y_1^2+y_2^2+\cdots+y_n^2$

18

Function keys Funktionstasten Touches de fonction Teclas de función Teclas de função Tasti di funzione Functietoetsen Függvénybillentyűk Tlačítka funkcí Funktionstangenter Funktionäppäimet Funktionstaster ปุ่มฟังก์ชัน مفاتيح الوظائف Tombol fungsi	Display Anzeige Affichage Visualizador Exibição Display Display Kijelző Zobrazení Visning Näyttö Display การแสดงผล الشاشة Tampilan	Buffer space* Pufferplatz* Espace tampon* Espacio de memoria intermedia* Espaço na memória intermediária* Memoria tampone* Bufferruimte* Pufferterület* Vyrovnávací paměť* Buffertutrymme* Puskuritila* Bufferplads* จำนวนบัฟเฟอร์* حيز تخزين مؤقت* Ruang buffer*
2ndF x^{-1}	$\square^{-1}$	1
x^2	$\square^2$	1
2ndF x^3	$\square^3$	1
y^x	$\square^{\square}$	5
2ndF $\log_a x$	$\log_{\square}(\square)$	7
2ndF e^x	$e^{\square}$	5
2ndF 10^x	$10^{\square}$	5
√	$\sqrt{\square}$	5
2ndF $\sqrt[3]{}$	$\sqrt[3]{\square}$	5
2ndF $\sqrt[x]{}$	$\sqrt[\square]{\square}$	7
a/b / 2ndF $a^{b/c}$	$\frac{\square}{\square}$	7
2ndF abs	$\lvert\square\rvert$	5
( )	( )	4

* The amount of memory used for the sake of display in the WriteView editor, measured in characters (excluding entered values, denoted in the chart by "□").
* Der für die Anzeige in WriteView Editor verwendete Speicherplatz, gemessen in Zeichen (ohne die eingegebenen Werte, die in der Tabelle mit „□" markiert sind).
* Espace mémoire utilisé pour préserver l'affichage dans l'éditeur WriteView, mesuré en caractère (à l'exception des valeurs d'entrée, indiquées dans le tableau par "□").
* La cantidad de memoria usada para visualizar en el editor Write View, medida en caracteres (excluyendo los valores introducidos, indicados en el grafico mediante "□").
* A quantidade de memória que é usada para a exibição no editor WriteView, medida em caracteres (excluindo os valores introduzidos, indicados no quadro por "□").
* La quantità di memoria utilizzata per la visualizzazione nell'editor WriteView, misurata in caratteri (escludendo i valori inseriti, indicati nella tabella con il simbolo "□").
* De hoeveelheid geheugen dat wordt gebruikt om de WriteView editor weer te geven, gemeten in symbolen (met uitzondering van ingevoerde waarden aangeduid in de grafiek met "□").
* A WriteView szerkesztő megjelenítési műveleteire használatos memóriaterület, karakterben kifejezve (az ábrán „□" karakterrel jelölt beviteli értékeket nem számítva).
* Množství paměti využívané pro účely zobrazení v editoru WriteView, vyjádřené počtem znaků (vyjma zadaných hodnot, označených v grafu znakem „□").
* Den mängd minne som används för visning med WriteView-redigeraren, mätt i antalet tecken (exklusive inmatade värden, vilka anges som "□" i tabellen).
* Näytön WriteView-editorissa käyttämä muisti merkkeinä laskettuna (pois lukien syötetyt arvot, taulukossa merkitty "□").
* Den mængde hukommelse, der bruges til visning i WriteView-editoren, målt i tegn (med undtagelse af indtastede værdier, der angives med „□" i tabellen).
* จำนวนหน่วยความจำ,หน่วยเป็นตัวอักษร,ที่ถูกใช้สำหรับการแสดงผลในWriteView(ไม่นับค่าที่ป้อนซึ่งแสดงโดย"□"ในตาราง)
* كمية الذاكرة المستعملة لغرض العرض في برنامج محرر WriteView، مقاسة بالاحرف والرموز (باستثناء القيم التي تم ادخالها، المشار اليها في الجدول بالعلامة "□").
* Jumlah memori yang digunakan untuk kepentingan tampilan dalam editor WriteView, diukur dalam jumlah karakter (tidak termasuk nilai yang dimasukkan, ditunjukkan dalam diagram dengan "□")

19

Function Funktion Fonction Función Função Funzioni Functie Függvény Funkce Funktion Funktio Funktion ฟังก์ชัน الدالة Fungsi	Dynamic range zulässiger Bereich Plage dynamique Rango dinámico Gama dinâmica Campi dinamici Rekencapaciteit Megengedett számítási tartomány Dynamický rozsah Definitionsområde Dynaaminen ala Dynamikområde พิสัยในการคำนวณ النطاق الديناميكي Kisaran dinamis
$\sin x$, $\cos x$, $\tan x$	DEG: $\lvert x\rvert<10^{10}$ ($\tan x$: $\lvert x\rvert\neq90(2n-1)$)* RAD: $\lvert x\rvert<\frac{\pi}{180}\times10^{10}$ ($\tan x$: $\lvert x\rvert\neq\frac{\pi}{2}(2n-1)$)* GRAD: $\lvert x\rvert<\frac{10}{9}\times10^{10}$ ($\tan x$: $\lvert x\rvert\neq100(2n-1)$)*
$\sin^{-1}x$, $\cos^{-1}x$	$\lvert x\rvert\leq1$
$\tan^{-1}x$, $\sqrt[3]{x}$	$\lvert x\rvert<10^{100}$
$\ln x$, $\log x$, $\log_a x$	$10^{-99}\leq x<10^{100}$, $10^{-99}\leq a<10^{100}$ ($a\neq1$)
y^x	• $y>0$: $-10^{100}<x\log y<100$ • $y=0$: $0<x<10^{100}$ • $y<0$: $x=n$ ($0<\lvert x\rvert<1$: $\frac{1}{x}=2n-1$, $x\neq0$)*, $-10^{100}<x\log\lvert y\rvert<100$
$\sqrt[x]{y}$	• $y>0$: $-10^{100}<\frac{1}{x}\log y<100$ ($x\neq0$) • $y=0$: $0<x<10^{100}$ • $y<0$: $x=2n-1$ ($0<\lvert x\rvert<1$: $\frac{1}{x}=n$, $x\neq0$)*, $-10^{100}<\frac{1}{x}\log\lvert y\rvert<100$
e^x	$-10^{100}<x\leq230.2585092$
10^x	$-10^{100}<x<100$
$\sinh x$, $\cosh x$, $\tanh x$	$\lvert x\rvert\leq230.2585092$
$\sinh^{-1}x$	$\lvert x\rvert<10^{50}$
$\cosh^{-1}x$	$1\leq x<10^{50}$
$\tanh^{-1}x$	$\lvert x\rvert<1$
x^2	$\lvert x\rvert<10^{50}$
x^3	$\lvert x\rvert<2.15443469\times10^{33}$
$\sqrt{x}$	$0\leq x<10^{100}$
x^{-1}	$\lvert x\rvert<10^{100}$ ($x\neq0$)
n!	$0\leq n\leq69$*
$_nP_r$	$0\leq r\leq n\leq9999999999$* $\frac{n!}{(n-r)!}<10^{100}$
$_nC_r$	$0\leq r\leq n\leq9999999999$* $0\leq r\leq69$ $\frac{n!}{(n-r)!}<10^{100}$
↔DEG, D°M'S	$0°0'0.00001"\leq\lvert x\rvert<10000°$
$x, y\rightarrow r, \theta$	$\sqrt{x^2+y^2}<10^{100}$
$r, \theta\rightarrow x, y$	$0\leq r<10^{100}$ DEG: $\lvert\theta\rvert<10^{10}$ RAD: $\lvert\theta\rvert<\frac{\pi}{180}\times10^{10}$ GRAD: $\lvert\theta\rvert<\frac{10}{9}\times10^{10}$
DRG▶	DEG → RAD, GRAD → DEG: $\lvert x\rvert<10^{100}$ RAD → GRAD: $\lvert x\rvert<\frac{\pi}{2}\times10^{98}$
→ DEC	DEC: $\lvert x\rvert\leq9999999999$
→ BIN	BIN: $1000000000\leq x\leq1111111111$ $0\leq x\leq111111111$
→ PEN	PEN: $2222222223\leq x\leq4444444444$ $0\leq x\leq2222222222$
→ OCT	OCT: $4000000000\leq x\leq7777777777$ $0\leq x\leq3777777777$
→ HEX	HEX: FDABF41C01 $\leq x\leq$ FFFFFFFFFF $0\leq x\leq$ 2540BE3FF
AND OR XOR XNOR	BIN: $1000000000\leq x\leq1111111111$ $0\leq x\leq111111111$ PEN: $2222222223\leq x\leq4444444444$ $0\leq x\leq2222222222$ OCT: $4000000000\leq x\leq7777777777$ $0\leq x\leq3777777777$ HEX: FDABF41C01 $\leq x\leq$ FFFFFFFFFF $0\leq x\leq$ 2540BE3FF
NOT	BIN: $1000000000\leq x\leq1111111111$ $0\leq x\leq111111111$ PEN: $2222222223\leq x\leq4444444444$ $0\leq x\leq2222222222$ OCT: $4000000000\leq x\leq7777777777$ $0\leq x\leq3777777777$ HEX: FDABF41C01 $\leq x\leq$ FFFFFFFFFF $0\leq x\leq$ 2540BE3FF
NEG	BIN: $1000000001\leq x\leq1111111111$ $0\leq x\leq111111111$ PEN: $2222222223\leq x\leq4444444444$ $0\leq x\leq2222222222$ OCT: $4000000001\leq x\leq7777777777$ $0\leq x\leq3777777777$ HEX: FDABF41C01 $\leq x\leq$ FFFFFFFFFF $0\leq x\leq$ 2540BE3FF

* n, r: integer / ganze Zahlen / entier / entero / inteiro / intero / geheel getal / egész számok / celé číslo / heltal / kokonaisluku / heltal / จำนวนเต็ม / عدد صحيح / bilangan bulat

Nur für Deutschland/For Germany only:

Umweltschutz
Das Gerät wird durch eine Batterie mit Strom versorgt.
Um die Batterie sicher und umweltschonend zu entsorgen, beachten Sie bitte folgende Punkte:
- Bringen Sie die leere Batterie zu Ihrer örtlichen Mülldeponie, zum Händler oder zum Kundenservice-Zentrum zur Wiederverwertung.
- Werfen Sie die leere Batterie niemals ins Feuer, ins Wasser oder in den Hausmüll.

Seulement pour la France/For France only:

Protection de l'environnement
L'appareil est alimenté par pile. Afin de protéger l'environnement, nous vous recommandons:
- d'apporter la pile usagée ou à votre revendeur ou au service après-vente, pour recyclage.
- de ne pas jeter la pile usagée dans une source de chaleur, dans l'eau ou dans un vide-ordures.

Endast svensk version/For Sweden only:

Miljöskydd
Denna produkt drivs av batteri.
Vid batteribyte skall följande iakttagas:
- Det förbrukade batteriet skall inlämnas till batteriinsamling eller till kommunal miljöstation för återinssamling.
- Kasta ej batteriet i vattnet eller i hushållssoporna. Batteriet får ej heller utsättas för öppen eld.

For Europe only:

SHARP
SHARP ELECTRONICS (Europe) GmbH
Sonninstraße 3, D-20097 Hamburg
SHARP CORPORATION

OPMERKING: ALLEEN VOOR NEDERLAND/
NOTE: FOR NETHERLANDS ONLY

NL Batterij niet weggooien, maar inleveren als KCA.

Attention: Your product is marked with this symbol. It means that used electrical and electronic products should not be mixed with general household waste. There is a separate collection system for these products.

A. Information on Disposal for Users (private households)
1. In the European Union
Attention: If you want to dispose of this equipment, please do not use the ordinary dust bin!
Used electrical and electronic equipment must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used electrical and electronic equipment.
Following the implementation by member states, private households within the EU states may return their used electrical and electronic equipment to designated collection facilities free of charge*. In some countries* your local retailer may also take back your old product free of charge if you purchase a similar new one.
*) Please contact your local authority for further details.
If your used electrical or electronic equipment has batteries or accumulators, please dispose of these separately beforehand according to local requirements.
By disposing of this product correctly you will help ensure that the waste undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health which could otherwise arise due to inappropriate waste handling.
2. In other Countries outside the EU
If you wish to discard this product, please contact your local authorities and ask for the correct method of disposal.
For Switzerland: Used electrical or electronic equipment can be returned free of charge to the dealer, even if you don't purchase a new product. Further collection facilities are listed on the homepage of www.swico.ch or www.sens.ch.

B. Information on Disposal for Business Users.
1. In the European Union
If the product is used for business purposes and you want to discard it:
Please contact your SHARP dealer who will inform you about the take-back of the product. You might be charged for the costs arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.
For Spain: Please contact the established collection system or your local authority for take-back of your used products.
2. In other Countries outside the EU
If you wish to discard of this product, please contact your local authorities and ask for the correct method of disposal.

ENGLISH

For Australia/New Zealand only:
For warranty information please see www.sharp.net.au.