SHARP

SCIENTIFIC CALCULATOR

WriteView

MODEL **EL-W532TH**

OPERATION MANUAL

PRINTED IN CHINA
16FSC(TINSEA154EHZZ)
B1098

INTRODUCTION

About the **calculation examples (including some formulas and tables)**, refer to the reverse side of this manual.
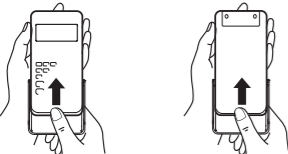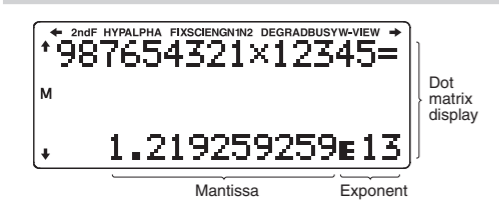After reading this manual, store it in a convenient location for future reference.

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. Avoid using a rough cloth or anything else that may cause scratches.
• Do not drop it or apply excessive force.
• Never dispose of batteries in a fire.
• Keep batteries out of the reach of children.
• For the sake of your health, try not to use this product for long periods of time. If you need to use the product for an extended period, be sure to allow your eyes, hands, arms, and body adequate rest periods (about 10–15 minutes every hour). If you experience any pain or fatigue while using this product, discontinue use immediately. If the discomfort continues, please consult a doctor.
• 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, have the calculator serviced in the region (country) where you purchased it.

Hard Case

DISPLAY

Mantissa   Exponent

• 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.
◂/▸: Indicates that some contents are hidden in the directions shown.

2ndF: Appears when [2ndF] is pressed, indicating that the functions shown in the same color as [2ndF] are enabled.
HYP: Indicates that [hyp] has been pressed and the hyperbolic functions are enabled. If [2ndF hyp] is pressed, the symbols "**2ndF HYP**" appear, indicating that inverse hyperbolic functions are enabled.
ALPHA: Appears when [ALPHA] is pressed, indicating that the functions shown in the same color as [ALPHA] are enabled. Appears when [STO] or [RCL] is pressed, and entry (recall) of memory contents can be performed.
FIX/SCI/ENG/N1/N2: Indicates the notation used to display a value and is changed by SET UP menu. **N1** is displayed on-screen as "NORM1", and **N2** as "NORM2".
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).

BEFORE USING THE CALCULATOR

Press [ON/C] to turn the calculator on.
Press [2ndF] [OFF] to turn it off.

Key Notations Used in this Manual

eˣ	To specify eˣ: [2ndF] [eˣ]
x√	
In	To specify In: [2ndF] [In]
	To specify E: [ALPHA] [E]

• Functions that are printed in gray adjacent to the keys are effective in specific modes.
• The multiplication operator "×" is differentiated from the letter "X" in this manual as follows:
To specify the multiplication operator: [×]
To specify the letter "X": [ALPHA] [X]
• 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.
• In each example, press [ON/C] to clear the display first. Unless otherwise specified, calculation examples are performed in the WriteView editor ([SET UP] [2] [0] [0]) with the default display settings.

Clearing the Entry and Memories

Operation	Entry (Display)	A–F, M, X, Y	D1–D3	ANS	STAT*1
[ON/C]	O	X	X	X	X
[2ndF] [CA]	O	X	X	O	O
Mode selection ([MODE])	O	X	X	X	X*2
[2ndF] [M-CLR] [0]	O	X	X	X	X
[2ndF] [M-CLR] [1]	O	X	X	X	X
[2ndF] [M-CLR] [2] [0]*3	O	O	O	O	O
RESET switch*3	O	O	O	O	O

O: Clear   X: Retain
*1 Statistical data (entered data)
*2 Cleared when changing between sub-modes in STAT mode.
*3 The RESET operation will erase all data stored in memory and restore the calculator's default settings.

Memory clear key

Press [2ndF] [M-CLR] to display the menu.
• To initialize the display settings, press [1]. The parameters set as follows:
• Angular unit: DEG
• Display notation: NORM1
• N-base: DEC

Mode Selection

NORMAL mode: [MODE] [0]
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.

HOME Key

Press [HOME] to return to NORMAL mode from other modes.
Note: Equations and values currently being entered will disappear, in the same way as when the mode is changed.

SET UP Menu

Press [SET UP] to display the SET UP menu.
Press [ON/C] to exit the SET UP menu.
Note: You can press [BS] to return to the previously displayed parent menu.

Determination of the angular unit (degrees, radians, and grades)

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 ❶

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, the number of decimal places (TAB) can be set to any value between 0 and 9.
• When [SET UP] [1] [1] (SCI) is pressed, 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
NORM1 (the default) and NORM2. A number is automatically displayed in scientific notation outside a preset range:
NORM1 ([SET UP] [1] [3]): 0.000000001 ≤ | x | ≤ 9,999,999,999
NORM2 ([SET UP] [1] [4]): 0.01 ≤ | x | ≤ 9,999,999,999

Selecting the editor ❷

This calculator has the following two editors in NORMAL mode:
WriteView and Line.
The WriteView editor (W-VIEW): [SET UP] [2] [0] (default)
The Line editor (LINE): [SET UP] [2] [1]
• Press [change] to change the calculation results to another format that can be displayed.

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.

Setting of the decimal point

You can show the decimal point in the calculation result as either a dot or a comma.
DOT: [SET UP] [5] [0] (default)
COMMA: [SET UP] [5] [1]
• During entry, the decimal point is only shown as a dot.

ENTERING, DISPLAYING, AND EDITING THE EQUATION ❸

The WriteView Editor

Entry and display
In the WriteView editor, you can enter and display fractions or certain functions as they are written.
• The WriteView editor can be used in NORMAL mode.

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

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.
• 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.
• In the Line editor, calculation results are displayed in decimal form or line fraction notation if possible.
• Use [change] to switch the display format to fractional form or decimal form (if possible).

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.

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].
Note: In a multi-level menu, you can press [BS] to back to the previous menu level.

Multi-line Playback Function ❹
This calculator is equipped with a function to recall previous equations and answers in NORMAL mode. Pressing [▲] will display the previous equation. The number of characters that can be saved is limited. When the memory is full, stored equations will be deleted to make room, starting with the oldest.
• To edit an equation after recalling it, press [◂] or [▸].
• The multi-line memory will be cleared by the following operations:
[2ndF] [OFF] (including the Automatic Power Off function), [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]).

Priority Levels in Calculation
This calculator performs operations according to the following priority:
① Fractions (1r4, etc.) ② Functions preceded by their argument (x⁻¹, x², n!, etc.) ③ yˣ, 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, A¼, etc.) ⑦ nCr, nPr, GCD, LCM ⑧ ×, ÷ ⑨ +, − ⑩ AND ⑪ OR, XOR, XNOR ⑫ =, M+, M−, ⇒M, ▶DEG, ▶RAD, ▶GRAD, →rθ, →xy, and other calculation ending instructions
• If parentheses are used, parenthesized calculations have precedence over any other calculations.

SCIENTIFIC CALCULATIONS

• Press [MODE] [0] to select NORMAL mode.

Arithmetic Operations

• 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.

Conversion to Engineering notation ❻

You can use [ALPHA] [←ENG] or [ALPHA] [ENG→] to convert the calculation result to engineering notation.
• Press [ALPHA] [←ENG] to decrease the exponent. Press [ALPHA] [ENG→] to increase the exponent.
• The settings (FSE) in the SET UP menu do not change.

Functions ❼

• Refer to the calculation examples for each function.
• In the Line editor, the following symbols are used:
• ⌐: to indicate an expression's power. ([yˣ], [x²], [eˣ], [10ˣ])
• ▸: to separate integers, numerators, and denominators. ([a/b])
• When using [2ndF] [abs] in the Line editor, values are entered in the following way:
• abs *value*

Random Function ❽

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
You can specify a range for the random integer with "R.Int(" only. R.Int(*minimum value, maximum value*)
For example, if you enter [2ndF] [RANDOM] [3] [1] [,] [9] [9] [ENTER], a random integer from 1 to 99 will be generated.

Angular Unit Conversions ❾

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

Memory Calculations ❿

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.
• →rθ, →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–D3)
You can store functions or operations in definable memories (D1–D3).
• To store a function or operation, press [STO], followed by a definable memory key ([D1], [D2], or [D3]), 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.
• You cannot store functions or operations in definable memories when entering values or items in STAT mode.

Memory List
Press [ALPHA] [MEMORY] to display a list of the values saved in memory. The values are shown in a 9-character range.
Applicable memories: A, B, C, D, E, F, X, Y, M

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

Fraction Calculations ⓬
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) ⓭
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.
Note: The hexadecimal numbers A–F are entered by pressing [yˣ], [x²], [x³], [log], [In], and [x⁻¹].
In the binary, pental, octal, and hexadecimal systems, fractional parts cannot be entered. In the case of mixed fractions, 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 ⓮
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:

Degree   Minute   Second

Coordinate Conversions ⓯
• Before performing a calculation, select the angular unit.
• The results of coordinate conversions will be displayed as decimal numbers even in the WriteView editor.

Rectangular coord.   Polar coord.

Modify Function ⓰
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 can be converted to match that of the display, so that the displayed value can be used without change in subsequent operation.
• When using the WriteView editor, if the calculation result is displayed using fractions or π, press [change] to convert it to decimal form first.

Calculating the Greatest Common Divisor (GCD)

What is the GCD of [ON/C] 24
24 and 36? [2ndF] [GCD] 36
[=]
12.

Calculating the Least Common Multiple (LCM)

What is the LCM of [ON/C] 15
15 and 9? [LCM] 9
[=]
45.

Prime Factorization ⓱
In NORMAL mode, the calculation result can be shown as a product of prime numbers.
• A positive integer greater than 2 and no more than 10 digits can be factored into primes.
• A number that cannot be factored into a prime number with 3 digits or shorter is shown in parentheses.
• The calculation result of prime factorization is displayed according to the editor setting (W-VIEW or LINE).
• The calculation result of prime factorization may extend off the edges of the screen. You can see those parts by pressing [◂] or [▸]. To jump to the left end or right end, press [2ndF] [◂] or [2ndF] [▸].

STATISTICAL CALCULATIONS ⓲ ⓳

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]	(SD): Single-variable statistics
[1]	(a + b x): Linear regression
[2]	(a + b x + c x²): Quadratic regression
[3]	(a•eᵇˣ): Euler exponential regression
[4]	(a + b•l n x): Logarithmic regression
[5]	(a•xᵇ): Power regression
[6]	(a + b / x): Inverse regression
[7]	(a•bˣ): General exponential regression

The statistical data input screen appears.

After entering statistical data from the input screen, press [DATA] or [ON/C] and close the data table. You can then check statistical values from the STAT menu ([ALPHA] [STAT]) and specify statistical variables.

Data Entry and Correction

Data entry
Entry field
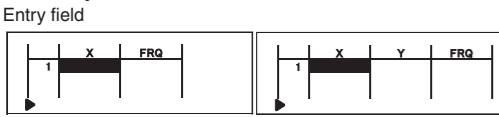
Single-variable data table   Two-variable data table

• After entering the data, press [ENTER]. The input is finalized and the cursor moves to the next line. If data was not entered in an x or y, 0 is entered, 1 is entered in FRQ (frequency), and the cursor moves to the next line.
• In the input table, up to 6 digits are displayed for each value, including the sign and decimal point. Any values that exceed 6 digits in length are displayed in exponent notation.
• Up to 100 data items can be entered. With single-variable data, a data item with an assigned frequency of one is counted as one data item, while an item with an assigned frequency of 2 or higher is stored as a set of two data items. With two-variable data, a set of data items with an assigned frequency of one is counted as two data items, while a set of data items with an assigned frequency of 2 or higher is stored as a set of three data items.
• To execute statistical calculation, press [DATA] or [ON/C] and close the input table.

Data correction
Use [◂], [▸], [▲], or [▼] to move the cursor and select the desired data. Press [2ndF] [▲] or [2ndF] [▼] to jump the cursor to the beginning or end of the data.

Data correction
Move the cursor to the data that you want to correct, enter the numeric value, and press [ENTER].

Data insertion
To insert a line in front of the cursor position, press [ALPHA] [INS-D]. The initial values entered in the inserted data are 0 in x and y, and 1 in FRQ.

Data deletion
To delete the entire line where cursor is positioned, press [2ndF] [DEL].
Notes:
• In STAT mode, all statistical data will be erased if the submode is changed or [2ndF] [CA] is pressed.
• In STAT mode, press [DATA] to display the input table.

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

Single-variable statistical calculation
Statistics of ① and ③.

Linear regression calculation
Statistics of ①, ② and ④. 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, ② and ④. And coefficients a, b, c in the quadratic regression formula (y = a + bx + cx²). (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. You can also specify the 1st value (x1′) and the 2nd value (x2′) separately.

Euler exponential regression, logarithmic regression, power regression, inverse regression, and general exponential regression calculations
Statistics of ①, ② and ④. 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.)

---

	n	Number of samples
①	x̄	Mean of samples (x data)
	sx	Sample standard deviation (x data)
	σx	Population standard deviation (x data)
	Σx	Sum of samples (x data)
	Σx²	Sum of squares of samples (x data)
	xmin	Minimum value of samples (x data)
	xmax	Maximum value of samples (x data)
②	ȳ	Mean of samples (y data)
	sy	Sample standard deviation (y data)
	σy	Population standard deviation (y data)
	Σy	Sum of samples (y data)
	Σy²	Sum of squares of samples (y data)
	Σxy	Sum of products of samples (x, y)
	Σx²y	Sum of products of samples (x², y)
	Σx³	Sum of 3rd powers of samples (x data)
	Σx⁴	Sum of 4th powers of samples (x data)
	ymin	Minimum value of samples (y data)
	ymax	Maximum value of samples (y data)
③	Q₁	First quartile of sample (x data)
	Med	Median of sample (x data)
	Q₃	Third quartile of sample (x data)
④	r	Correlation coefficient (Except Quadratic regression)
	a	Coefficient of regression equation
	b	Coefficient of regression equation
	c	Coefficient of quadratic regression equation

STAT Menu
After closing the input table, you can view statistical values, view regression coefficient values, and specify statistical variables from STAT menu ([ALPHA] [STAT]).
[ALPHA] [STAT] [0]: Display statistical values
[ALPHA] [STAT] [1]: Display regression coefficient values
[ALPHA] [STAT] [2]: Specify statistical value variables
[ALPHA] [STAT] [3]: Specify statistical value (Σ related) variables
[ALPHA] [STAT] [4]: Specify max/min value variables
[ALPHA] [STAT] [5]: Specify regression coefficient variables

Notes:
• List display of regression coefficient values and specification of regression coefficient variables do not appear in single-variable statistical calculation.
• Estimated values x′ and y′ are specified with the keys ([2ndF] [x′], [2ndF] [y′]). If there are two x′ values, you can specify x1′ and x2′ from the STAT menu ([ALPHA] [STAT] [5]) to obtain the values separately.
• In the statistical value and regression coefficient value lists, you cannot return to the menu by pressing [BS].

Statistical Calculation Formulas ⓴
An error will occur when:
• The absolute value of the intermediate result or calculation result is equal to or greater than 1 × 10¹⁰⁰.
• 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 (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.

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 10¹⁰⁰.
• An attempt was made to divide by zero (or an intermediate calculation resulted in zero).
• The calculation ranges were exceeded while performing calculations.
• When the number to be factored into primes is greater than 2 and other than a 10-digit positive integer, or when the result of prime factorization is a negative number, decimal, fraction, or π.

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

Cannot delete!
• The selected item cannot be deleted by pressing [BS] or [2ndF] [DEL] in the WriteView editor.
• Ex. [√] [5] [▸] [x²] [◂] [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 D3) 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 ㉑
• **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 yˣ, x√, n!, eˣ, In, 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
±10⁻⁹⁹ to ±9.999999999 × 10⁹⁹ 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.

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.

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 two screws. (Fig. 1)
3. Lift the battery cover to remove.
4. Remove the used battery.
5. Install one new battery. First insert the "−" side toward the spring. (Fig. 2)
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". And then press [ON/C].
• 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.

NORMAL MODE
0.

Fig. 1   Fig. 2

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

SPECIFICATIONS

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: 1.5 V ⎓ (DC): Heavy duty manganese battery (size AAA or R03) × 1
Operating time: Approx. 17,000 hours when continuously displaying 55555 at 25°C (77°F) (varies according to use and other factors)
Operating temperature: 0°C–40°C (32°F–104°F)
External dimensions: 80 mm (W) × 166 mm (D) × 15 mm (H) 3-5/32" (W) × 6-17/32" (D) × 19/32" (H)
Weight: Approx. 113 g (0.25 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/

SHARP
SHARP CORPORATION

ENGLISH

CALCULATION EXAMPLES

WriteView EL-W532TH

❶ [SET UP] (FSE)

100000 ÷ 3 =

[NORM1] — ON/C 100000 ÷ 3 = 33'333.33333
→ [FIX: TAB 2] — [SET UP] 1 1 2 — 33'333.33
→ [SCI: SIG 2] — [SET UP] 1 1 2 — 3.3ᴇ04
→ [ENG: TAB 2] — [SET UP] 1 2 2 — 33.33ᴇ03
→ [NORM1] — [SET UP] 1 3 — 33'333.33333

❷ [SET UP] (EDITOR)

→ [LINE] — ON/C [SET UP] 2 1 — 0.
1 ÷ 2 = — 1 ÷ 2 = — 0.5
→ [W-VIEW] — [SET UP] 2 0 — 0.
1 ÷ 2 = — 1 ÷ 2 = — $\frac{1}{2}$

❸ [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] — $1\frac{3}{20}$

2cos⁻¹ 0.5 (rad) = — 2 [2ndF] cos⁻¹ 0.5 = — $\frac{2}{3}\pi$
[CHANGE] — 2.094395102

❹ [2ndF] [▲] [▼]

[2ndF] CA — 0.
① 3(5 + 2) = — 3 (5 ＋ 2) = — 21.
② 3 × 5 + 2 = — 3 × 5 ＋ 2 = — 17.
③ (5 + 3) × 2 = — (5 ＋ 3) × 2 = — 16.
→ ① — [2ndF] [▲] — 21.
→ ② — [▼] — 17.
→ ① — [▲] — 21.
→ ③ — [2ndF] [▼] — 16.

❺ ＋ － × ÷ ( ) (－) Exp

45 + 285 ÷ 3 = — ON/C 45 ＋ 285 ÷ 3 = — 140.
$\frac{18+6}{15-8}=$ — (18 ＋ 6) ÷ (15 － 8) = — $3\frac{3}{7}$
42 × −5 + 120 = — 42 × (－) 5 ＋ 120 = — -90.
(5 × 10³) ÷ (4 × 10⁻³) = — 5 Exp 3 ÷ 4 Exp (－) 3 = — 1'250'000.

❻

34 + 57 = — 34 ＋ 57 = — 91.
45 + 57 = — 45 ＋ = — 102.
68 × 25 = — 68 × 25 = — 1'700.
68 × 40 = — 40 = — 2'720.

❼ [<ENG] [ENG>]

6789= — ON/C 6789 = — 6'789.
— [ALPHA] [ENG>] — 6.789ᴇ03
— [ALPHA] [ENG>] — 0.006789ᴇ06
— [ALPHA] [<ENG] [ALPHA] [<ENG] — 6789.ᴇ00
— [ALPHA] [<ENG] — 6789000.ᴇ-03

❽ sin cos tan sin⁻¹ cos⁻¹ tan⁻¹ π hyp arc hyp / ln log eˣ 10ˣ Xˣ X⁻¹ X² X³ xˣ / √ ³√ ⁿ√ n! nPr nCr % abs

sin 60 (°) = — ON/C [SET UP] 0 0 sin 60 = — 0.866025403
cos−$\frac{\pi}{4}$ (rad) = — [SET UP] 0 1 cos (－) π a/b 4 = — 0.707106781
tan⁻¹1 (g) = — [SET UP] 0 2 [2ndF] tan⁻¹ 1 = — 50.

(cosh1.5 + sinh1.5)² = — ON/C (hyp) cos 1.5 ＋ (hyp) sin 1.5 x² = — 20.08553692
tanh⁻¹ $\frac{5}{7}$ = — [2ndF] arc hyp tan a/b 5 ▶ 7 = — 0.895879734
ln20 = — ln 20 = — 2.995732274
log50 = — log 50 = — 1.698970004
e³ = — [2ndF] eˣ 3 = — 20.08553692
1 ÷ e = — 1 ÷ [ALPHA] e = — 0.367879441
10¹·⁷ = — [2ndF] 10ˣ 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 − 3⁴ × 5² = — 8 [yˣ] (－) 2 ▶ － 3 [yˣ] 4 [▶] × 5 [x²] = — $-2024\frac{63}{64}$
— [CHANGE] — $-\frac{129599}{64}$
[LINE] — 8 [yˣ] (－) 2 ＝ — -2'024.984375
— 3 [yˣ] 4 × 5 — -2'024.984375
[LINE] — [CHANGE] — -2024r63r64
— [CHANGE] — -129599r64

8³ = — 8 [2ndF] [xˣ] = — 512.
⁴√49 − ⁴√81 = — [ⁿ√] 49 [▶] － 4 [ⁿ√] 81 [▶] = — 4.
[LINE] — [ⁿ√] 49 ＝ 4 — 4.
— [2ndF] [³√] 81 ＝ 4 — 4.
³√27 = — [2ndF] [³√] 27 = — 3.
4! = — 4 [2ndF] [n!] = — 24.
₁₀P₃ = — 10 [2ndF] [nPr] 3 = — 720.
₅C₂ = — 5 [2ndF] [nCr] 2 = — 10.
500 × 25% = — 500 × 25 [2ndF] [%] = — 125.
120 ÷ 400 = ?% — 120 ÷ 400 [2ndF] [%] = — 30.
500 + (500 × 25%) = — 500 ＋ 25 [2ndF] [%] = — 625.
400 − (400 × 30%) = — 400 － 30 [2ndF] [%] = — 280.
|5 − 9| = — [2ndF] [abs] 5 － 9 = — 4.

❾ [DRG▶]

90° → [rad] — ON/C 90 [2ndF] [DRG▶] — $\frac{1}{2}\pi$
→ [g] — [2ndF] [DRG▶] — 100.
→ [°] — [2ndF] [DRG▶] — 90.

❿ [ALPHA] [RCL] [STO] M+ M− [ANS] D1 D2 D3

8 × 2 ⇒ M — ON/C 8 × 2 [STO] M — 16.
24 ÷ (8 × 2) = — 24 ÷ [ALPHA] M = — $1\frac{1}{2}$
(8 × 2) × 5 = — [ALPHA] M × 5 = — 80.
0 ⇒ M — ON/C [STO] M — 0.
$150 × 3 ⇒ M₁ — 150 × 3 M+ — 450.
+) $250: M₁ + 250 ⇒ M₂ — 250 M+ — 250.
⇒ M₂ × 5% — [RCL] M × 5 [2ndF] [%] — 35.
M = — [RCL] M — 665.
$\frac{24}{4+6}=2\frac{2}{5}...(A)$ — 24 ÷ (4 ＋ 6 = — $2\frac{2}{5}$
3 × (A) + 60 ÷ (A) = — 3 × [ALPHA] [ANS] ＋ 60 ÷ [ALPHA] [ANS] = — $32\frac{1}{5}$
sinh⁻¹ ⇒ D1 — [STO] D1 [2ndF] arc hyp sin
sinh⁻¹0.5 = — D1 0.5 = — 0.481211825

⓫

6 + 4 = ANS — ON/C 6 ＋ 4 = — 10.
ANS + 5 = — ＋ 5 = — 15.
8 × 2 = ANS — 8 × 2 = — 16.
ANS² = — [x²] = — 256.

⓬ a/b ab/c

$3\frac{1}{2}+\frac{4}{3}=$ — 3 a/b 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

* 4r5r6 = $4\frac{5}{6}$

⓭ [←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.
BIN (111) → NEG — [2ndF] [←BIN] [NEG] 111 = — BIN 1111111001
1011 AND 101 = [BIN] — [2ndF] [←BIN] 1011 [AND] 101 = — BIN 1
5A OR C3 = [HEX] — C3 [OR] 5A [←HEX] = — HEX DB
NOT 10110 [BIN] — [2ndF] [←BIN] [NOT] 10110 = — BIN 1111101001
24 XOR 4 = [OCT] — 24 [XOR] 4 [←OCT] = — OCT 20
B3 XNOR 2D = [HEX] — 2D [XNOR] B3 [←HEX] = — HEX FFFFFFFF61
→ DEC — [2ndF] [←DEC] — -159.

⓮ [D·M·S] [←DEG]

7°31'49.44" → [10] — ON/C 7 [D·M·S] 31 [D·M·S] 49.44 [D·M·S] [←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°034.567" = [60] — 1234 [D·M·S] 56 [D·M·S] 12 ＋ [D·M·S] [D·M·S] 34.567 = — 1234°56'47."
3h 45m − 1.69h = [60] — 3 [D·M·S] 45 [D·M·S] − 1.69 = — 2°3'36."
sin62°12'24" = [10] — sin 62 [D·M·S] 12 [D·M·S] 24 = — 0.884635235

⓯ →rθ →xy (r,θ)

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

⓰ [MDF]

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

*¹ $\frac{5}{9}$ × 9 = 5.5555555555555 × 10⁻¹ × 9
*² $\frac{3}{5}$ × 9 = 0.6 × 9

⓱ [P.FACT]

12210 = — ON/C 12210 = — 12'210.
— [2ndF] [P.FACT] — 2×3×5×11×37
— [2ndF] [P.FACT] — 12'210.
1234567 = — 1234567 = — 1'234'567.
— [2ndF] [P.FACT] — 127×(9721)

⓲ MODE (STAT) [INS-D]

DATA				X	FRQ
20		MODE 1 0			
30					
40			1	███	
50					

20 [ENTER] 30 [ENTER] 40 [x/n] 2 [ENTER] 50 [ENTER]

↓

DATA		X	FRQ
30		3 40	
40		4 50	
		5	

[2ndF] [▲] [2ndF] [DEL] [▼] [▼] [ALPHA] [INS-D]

45 [x/n] 3 [ENTER] 60 [ENTER]

↓

DATA		X	FRQ
30		3 45	3
45		4 60	1
45		5	
60			

⓳ MODE (STAT) [DATA] [STAT] x̄' ȳ'

DATA				X	FRQ
95		MODE 1 0 CA [DATA]			
80					
75			3 75	3	
75			4 50	1	
50			5		

95 [ENTER] 80 [x/n] 2 [ENTER] 75 [x/n] 3 [ENTER] 50 [ENTER]

[DATA]	Stat 0[SD]	
		0.
[ALPHA] [STAT] 0	n =	7.
	$\bar{x}$ =	75.7142857
	sx =	13.3630621
[▼]	σx =	12.3717915
	Σx =	530.
	Σx^2 =	41'200.
	$xmin$ =	50.
[▼]	Q_1 =	75.
	Med =	75.
	Q_3 =	80.
[▼]	$xmax$ =	95.

$\frac{(95-\bar{x})}{sx} \times 10 \div 50 =$ — ON/C (95 － [ALPHA] [STAT] 1) ÷ [ALPHA] [STAT] 2 × 10 ÷ 50 = — 64.43210706

DATA		MODE 1 1 2 [x/n] 5 [x/n] 2 [ENTER]
x	y	12 [x/n] 24 [ENTER] 21 [x/n] 40 [x/n] 3 [ENTER]
2	5	15 [x/n] 25 [ENTER]
2	5	

		X	Y	FRQ
	3	21	40	3
12	24	4 15	25	1
21	40	5		
21	40			
21	40			
15	25			

[DATA]	Stat 1[a+bx]	
		0.
	$a + bx$	
[ALPHA] [STAT] 1	a =	1.050261097
	b =	1.826044386
	r =	0.995176343
ON/C [STAT] 0 [▼] [▼]	$\uparrow\Sigma x^4$ =	654'836.
	$ymin$ =	5.
	$ymax$ =	40.

x = 3 → y' = ? — ON/C 3 [2ndF] [y'] 3 y' — 6.528394256
y = 46 → x' = ? — 46 [2ndF] [x'] 46 x' — 24.61590706

DATA		MODE 1 2 12 [x/n] 41 [ENTER]
x	y	8 [x/n] 13 [ENTER] 5 [x/n] 2 [ENTER]
12	41	23 [x/n] 200 [ENTER] 15 [x/n] 71 [ENTER]
8	13	
5	2	

		X	Y	FRQ
	4	23	200	1
23	200	5 15	71	
15	71	6		

[DATA]	Stat 2[a+bx+cx²]	
		0.
	$a + bx + cx^2$	
[ALPHA] [STAT] 1	a =	5.357506761
	b =	-3.120289663
	c =	0.503334057

x = 10 → y' = ? — ON/C 10 [2ndF] [y'] 10 y' — 24.4880159
y = 22 → x' = ? — 22 [2ndF] [x'] 22 x' — 1: 9.63201409 — 2: -3.432772026
— 22 [ALPHA] [STAT] 5 4 — 22 x'2 — -3.432772026

⓴

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

$sx = \sqrt{\frac{\Sigma x^2 - n\bar{x}^2}{n-1}}$

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

$sy = \sqrt{\frac{\Sigma y^2 - n\bar{y}^2}{n-1}}$

㉑

Function	Dynamic range
$\sin x, \cos x, \tan x$	DEG: $\|x\| < 10^{10}$ (tan x: $\|x\| \neq 90(2n-1)$)*
	RAD: $\|x\| < \frac{\pi}{180} \times 10^{10}$ (tan x: $\|x\| \neq \frac{\pi}{2}(2n-1)$)*
	GRAD: $\|x\| < \frac{10}{9} \times 10^{10}$ (tan x: $\|x\| \neq 100(2n-1)$)*
$\sin^{-1} x, \cos^{-1} x$	$\|x\| \leq 1$
$\tan^{-1} x, \sqrt[3]{x}$	$\|x\| < 10^{100}$
$\ln x, \log x$	$10^{-99} \leq x < 10^{100}$
y^x	• $y > 0$: $-10^{100} < x \log y < 100$ • $y = 0$: $0 < x < 10^{100}$ • $y < 0$: $x = n$ ($0 < \|x\| < 1$: $\frac{1}{x} = 2n-1, x \neq 0$)*, $-10^{100} < x \log\|y\| < 100$
$x\sqrt{y}$	• $y > 0$: $-10^{100} < \frac{1}{x}\log y < 100$ ($x \neq 0$) • $y = 0$: $0 < x < 10^{100}$ • $y < 0$: $x = 2n-1$ ($0 < \|x\| < 1$: $\frac{1}{x} = n, x \neq 0$)*, $-10^{100} < \frac{1}{x}\log\|y\| < 100$
e^x	$-10^{100} < x < 230.2585092$
10^x	$-10^{100} < x < 100$
$\sinh x, \cosh x, \tanh x$	$\|x\| \leq 230.2585092$
$\sinh^{-1} x$	$\|x\| < 10^{50}$
$\cosh^{-1} x$	$1 \leq x < 10^{50}$
$\tanh^{-1} x$	$\|x\| < 1$
x^2	$\|x\| < 10^{50}$
x^3	$\|x\| < 2.15443469 \times 10^{33}$
$\sqrt{x}$	$0 \leq x < 10^{100}$
x^{-1}	$\|x\| < 10^{100}$ ($x \neq 0$)
$n!$	$0 \leq n \leq 69$*
$_nP_r$	$0 \leq r \leq n \leq 9999999999$* $\frac{n!}{(n-r)!} < 10^{100}$
$_nC_r$	$0 \leq r \leq n \leq 9999999999$* $0 \leq r \leq 69$ $\frac{n!}{(n-r)!} < 10^{100}$
↔DEG, D·M·S	$0°0'0.00001" \leq \|x\| < 10000°$
$x, y \to r, \theta$	$\sqrt{x^2 + y^2} < 10^{100}$
$r, \theta \to x, y$	$0 \leq r < 10^{100}$ DEG: $\|\theta\| < 10^{10}$ RAD: $\|\theta\| < \frac{\pi}{180} \times 10^{10}$ GRAD: $\|\theta\| < \frac{10}{9} \times 10^{10}$
DRG▶	DEG → RAD, GRAD → DEG: $\|x\| < 10^{100}$ RAD → GRAD: $\|x\| < \frac{\pi}{2} \times 10^{98}$
$_nGCD, _nLCM$	$0 < n < 10^{10}$*
R.Int(m, n)	$\|m\| \leq 9999999999$* $\|n\| \leq 9999999999$* $m < n, n - m < 10^{10}$
→ DEC → BIN → PEN → OCT → HEX AND OR XOR XNOR	DEC: $\|x\| \leq 9999999999$ BIN: $1000000000 \leq x \leq 1111111111$ $0 \leq x \leq 111111111$ PEN: $2222222223 \leq x \leq 4444444444$ $0 \leq x \leq 2222222222$ OCT: $4000000000 \leq x \leq 7777777777$ $0 \leq x \leq 3777777777$ HEX: FDABF41C01 $\leq x \leq$ FFFFFFFFFF $0 \leq x \leq 2540BE3FF$
NOT	BIN: $1000000000 \leq x \leq 1111111111$ $0 \leq x \leq 111111111$ PEN: $2222222223 \leq x \leq 4444444444$ $0 \leq x \leq 2222222221$ OCT: $4000000000 \leq x \leq 7777777777$ $0 \leq x \leq 3777777777$ HEX: FDABF41C01 $\leq x \leq$ FFFFFFFFFF $0 \leq x \leq 2540BE3FE$

NEG	BIN: $1000000001 \leq x \leq 1111111111$ $0 \leq x \leq 111111111$ PEN: $2222222223 \leq x \leq 4444444444$ $0 \leq x \leq 2222222222$ OCT: $4000000001 \leq x \leq 7777777777$ $0 \leq x \leq 3777777777$ HEX: FDABF41C01 $\leq x \leq$ FFFFFFFFFF $0 \leq x \leq 2540BE3FF$

* m, n, r: integer