

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

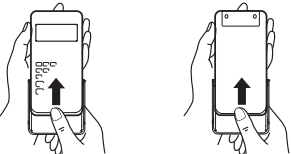
- Do not carry the calculator around in your back pocket, as it may break when you sit down. The display is made of glass and is particularly fragile.
- Keep the calculator away from extreme heat such as on a car dashboard or near a heater, and avoid exposing it to excessively humid or dusty environments.
- 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

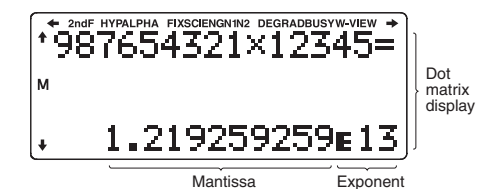
- SHARP strongly recommends that separate permanent written records be kept of all important data. Data may be lost or altered in virtually any electronic memory product under certain circumstances. Therefore, SHARP assumes no responsibility for data lost or otherwise rendered unusable whether as a result 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



- 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.
- ↕/↓: Indicates that some contents are hidden in the directions shown.

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:

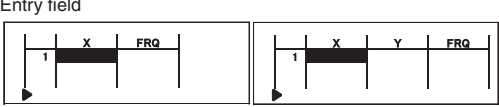
- 0** (SD): Single-variable statistics
- 1** (a+b \times): Linear regression
- 2** (a+b \times +c \times ²): Quadratic regression
- 3** (a \times e^{b \times}): Euler exponential regression
- 4** (a+b \times ln x): Logarithmic regression
- 5** (a \times e^{b \times}): Power regression
- 6** (a+b \div x): Inverse regression
- 7** (a \times b \times): 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 input table. You can then check statistical values from the STAT menu (**[ALPHA]** **[STAT]**) and specify statistical variables.

Data Entry and Correction

Data entry



- 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.
- You can use **(x²)** to enter X and FRQ (or X, Y, and FRQ) at once.
- 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 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 **(left arrow)**, **(right arrow)**, **(up arrow)**, or **(down arrow)** to move the cursor and select the desired data. Press **[2ndF]** **(up arrow)** or **[2ndF]** **(down arrow)** 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.", 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.)

- 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]** **(arc 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/NI/2:** 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".
- 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

- e^x** **[E]** To specify e^x; **[2ndF]** **[e^x]**
- ln** To specify ln; **[ln]**
- To specify **e^{ALPHA}**; **[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: **(X)**
 - 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 (**[SETUP]** **(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] [MCLR] (0)	O	X	X	X	X
[2ndF] [MCLR] (1) (0)	O	O	O	O	O
[2ndF] [MCLR] (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]** **[MCLR]** 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

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 **[SETUP]** 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 (°): **(SETUP)** **(0)** **(0)** (default)

RAD (rad): **(SETUP)** **(0)** **(1)**

GRAD (g): **(SETUP)** **(0)** **(2)**

Selecting the display notation and decimal places

- Two settings of Floating point (NORM1 and NORM2), Fixed decimal point (FIX), Scientific notation (SCI), and Engineering notation (ENG).
- When **(SETUP)** **(1)** **(0)** (FIX) or **(SETUP)** **(1)** **(2)** (ENG) is pressed, the number of decimal places (TAB) can be set to any value between 0 and 9.
 - When **(SETUP)** **(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.

	<i>n</i>	Number of samples
	\bar{x}	Mean of samples (x data)
	s_x	Sample standard deviation (x data)
	σ_x	Population standard deviation (x data)
①	$\sum x$	Sum of samples (x data)
	$\sum x^2$	Sum of squares of samples (x data)
	x_{min}	Minimum value of samples (x data)
	x_{max}	Maximum value of samples (x data)
	\bar{y}	Mean of samples (y data)
	s_y	Sample standard deviation (y data)
	σ_y	Population standard deviation (y data)
	$\sum y$	Sum of samples (y data)
	$\sum y^2$	Sum of squares of samples (y data)
②	$\sum xy$	Sum of products of samples (x, y)
	$\sum x^2y$	Sum of products of samples (x ² , y)
	$\sum x^3$	Sum of 3rd powers of samples (x data)
	$\sum x^4$	Sum of 4th powers of samples (x data)
	y_{min}	Minimum value of samples (y data)
	y_{max}	Maximum value of samples (y data)
	Q_1	First quartile of sample (x data)
③	Med	Median of sample (x data)
	Q_3	Third quartile of sample (x data)
	<i>r</i>	Correlation coefficient (Except Quadratic regression)
④	<i>a</i>	Coefficient of regression equation
	<i>b</i>	Coefficient of regression equation
	<i>c</i>	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 (\sum 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]** **(y')**, **[2ndF]** **(x')**. 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

An error will occur when:
• The absolute value of the intermediate result or calculation result is equal to or greater than 1 × 10¹⁰.

- 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

- Press **(MODE)** **(2)** **(0)** for Math Drill or **(MODE)** **(2)** **(1)** for × Table.
- Math Drill:** Use **(up arrow)** and **(down arrow)** to select the number of questions (25, 50, or 100).
 - × Table: Use **(up arrow)** and **(down arrow)** to select a row in the multiplication table (1 to 12).
- Math Drill:** Use **(left arrow)** and **(right arrow)** to select the operator type for questions (+, −, ×, ÷, or +−×÷).
 - × Table: Use **(left arrow)** and **(right arrow)** to select the order type ("Serial" or "Random").
- Press **[ENTER]** to start.
 - When using Math Drill or × Table (random order only), questions are randomly selected and will not repeat except by chance.
- Enter your answer. Press **[ON/C]** or **(BS)** to clear the entered number and then enter the correct answer.
- 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.
- Continue answering the series of questions by entering the answer and pressing **[ENTER]**.
- After you finish, press **[ENTER]** and the number and percentage of correct answers are displayed.
- Press **[ENTER]** to return to the initial screen for your current drill.

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 (**(SETUP)** **(1)** **(3)**): 0.000000001 ≤ |x| ≤ 9,999,999,999

NORM2 (**(SETUP)** **(1)** **(4)**): 0.01 ≤ |x| ≤ 9,999,999,999

Selecting the editor

This calculator has the following two editors in NORMAL mode: WriteView and Line.

The WriteView editor (W-VIEW): **(SETUP)** **(2)** **(0)** (default)
The Line editor (LINE): **(SETUP)** **(2)** **(1)**

- Press **(write)** to change the calculation results to another format that can be displayed.

Adjusting the display contrast

Press **(SETUP)** **(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 **(SETUP)** **(4)** **(1)**), the triangular cursor will change to a rectangular one, and the number of 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: **(SETUP)** **(5)** **(0)** (default)
 - COMMA: **(SETUP)** **(5)** **(1)**
- During entry, the decimal point is only shown as a dot.

ENTERING, DISPLAYING, AND EDITING THE EQUATION

The WriteView Editor

Entry and display

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

- 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 **(write)**, 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 **(write)** to switch the display format to fractional form or decimal form (if possible).

Editing the Equation

Just after obtaining an answer, pressing **(left arrow)** brings you to the end of the equation and pressing **(right arrow)** brings you to the beginning. Press **(left arrow)**, **(right arrow)**, **(up arrow)**, or **(down arrow)** to move the cursor. Press **[2ndF]** **(left arrow)** or **[2ndF]** **(right arrow)** 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

- This calculator is equipped with a function to recall previous equations and answers in NORMAL mode. Pressing **(up arrow)** 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 **(left arrow)** or **(right arrow)**.
- 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 **(SETUP)** **(2)** **(0)** or **(SETUP)** **(2)** **(1)**, and memory clear **[2ndF]** **[MCLR]** **(1)** **(0)**.

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}, x², n!, etc.)
- ③ y^x, x^y, \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 (2sin30, A $\frac{1}{2}$, etc.)
- ⑦ nCr, nPr, GCD, LCM ⑧ ×, ÷, ⑨ +, − ⑩ AND ⑪ OR, XOR, XNOR
- ⑫ =, M+, M−, ⇒M, ► DEG, ► RAD, ► GRAD, →r0, →xy, and other calculation ending instructions
- If parentheses are used, parenthesized calculations have precedence over any other calculations.

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 **(left arrow)** or **(right arrow)** 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).

CALCULATION EXAMPLES

WriteView

EL-W532TH

1

SETUP

FSE

100000 ÷ 3 =

ONC

100000

÷

3

=

onble

onble

33'333,33333

→ [FIX: TAB 2]

SETUP

1

0

2

=

33'333.33

→ [SCI: SIG 2]

SETUP

1

1

2

=

3.3E04

→ [ENG: TAB 2]

SETUP

1

2

2

=

33.33E03

→ [NORM1]

SETUP

1

3

=

33'333,33333

2

SETUP

EDITOR

→ [LINE]

ONC

SETUP

2

1

=

0.

1 + 2 =

1

+

2

=

0.5

→ [W-VIEW]

SETUP

2

0

=

0.

1 + 2 =

1

+

2

=

1

2

3

onble

2

+

3

=

ONC

2

ab

5

▶

=

+

ab

3

▶

4

=

1

3

20

onble

23

20

onble

1.15

onble

1

3

20

2cos⁻¹0.5 [rad] =

SETUP

0

1

=

2

2ndF

cos⁻¹

0.5

=

2

3

π

onble

2.094395102

4

▲

▼

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.

5

+

−

×

÷

(

)

(→)

E_{xp}

45 + 285 ÷ 3 =

ONC

45

+

285

÷

3

=

140.

18 ÷ 6 =

(

18

÷

6

)

÷

(

15

−

8

)

=

3

3

7

42 × −5 + 120 =

42

×

(

−

5

+

120

)

=

−90.

(5 × 10³) ÷ (4 × 10^{−3}) =

5

E_{xp}

(

−

3

)

÷

4

E_{xp}

(

−

3

)

=

1'250'000.

6

34 + 57 =

34

+

57

=

91.

45 ± 57 =

45

=

102.

68 × 25 =

68

×

25

=

1'700.

68 × 40 =

40

=

2'720.

7

<ENG

<ENG>

6789 =

ONC

6789

=

6'789.

ALPHA

<ENG>

=

6.789E03

ALPHA

<ENG>

=

0.006789E06

ALPHA

<ENG

ALPHA

<ENG>

=

6789.E00

ALPHA

<ENG

=

6789000.E−03

8

sin

cos

tan

sin⁻¹

cos⁻¹

tan⁻¹

π

hyp

arc hyp

√

√

e^x

e

10^x

x⁻¹

x²

x³

y^x

nPr

nCr

%

abs

sin 60 [°] =

ONC

SETUP

0

0

=

sin

60

=

0.866025403

cos $\frac{\pi}{4}$ [rad] =

SETUP

0

1

=

cos

π

ab

4

=

0.707106781

tan⁻¹1 [g] =

SETUP

0

2

=

2ndF

tan⁻¹

1

=

50.

SETUP

0

0

=

(cosh 1.5 + sinh 1.5)² =

ONC

(

1

hyp

cos

1.5

+

hyp

sin

1.5

)

^2

=

20.08553692

tanh⁻¹ $\frac{5}{7}$ =

2ndF

arc hyp

tan

(

5

÷

7

)

=

0.895879734

ln 20 =

ln

20

=

2.995732274

log 50 =

log

50

=

1.698970004

e³ =

2ndF

e^x

3

=

20.08553692

1 ÷ 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

)

=

13

42

onble

0.309523809

8⁻² − 3⁴ × 5² =

8

(

x¹

(

−

1

)

2

▶

−

3

(

x¹

)

4

▶

×

5

)

2

=

-2024

63

64

onble

-129599

64

onble

-2'024.984375

LINE

8

(

x¹

(

−

1

)

2

▶

−

3

(

x¹

)

4

×

5

)

2

=

-2'024.984375

onble

-2024r63r64

onble

-129599r64

$\theta = \sin^{-1}x, \theta = \tan^{-1}x$

$\theta = \cos^{-1}x$

DEG −90 ≤ θ ≤ 90 0 ≤ θ ≤ 180

RAD $-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$ 0 ≤ θ ≤ π

GRAD −100 ≤ θ ≤ 100 0 ≤ θ ≤ 200

9

DRG▶

90° → [rad]

ONC

90

2ndF

DRG▶

=

1

2

π

→ [g]

2ndF

DRG▶

=

100.

→ [°]

2ndF

DRG▶

=

90.

10

ALPHA

RCL

STO

M+

M−

ANS

D1

D2

D3

8 × 2 ⇒ M

ONC

8

×

2

STO

M

=

16.

24 ÷ (8 × 2) =

24

(

÷

)

ALPHA

M

=

1

2

(8 × 2) × 5 =

ALPHA

M

×

5

=

80.

0 ⇒ M

ONC

STO

M

=

0.

\$150 × 3 ⇒ M₁

150

×

3

LM

=

450.

+) \$250: M₁ + 250 ⇒ M₂

250

M+

=

250.

−) M₂ × 5%

RCL

M

×

5

2ndF

%

=

35.

M =

RCL

M

=

665.

 $\frac{24}{4 + 6} = 2 \frac{2}{5} \dots (A)$

24

(

+

)

4

+

6

)

=

2

2

5

3 × (A) + 60 ÷ (A) =

3

×

ALPHA

ANS

(

+

)

60

÷

+

ALPHA

ANS

=

32

1

5

sinh⁻¹ ⇒ D1

STO

D1

2ndF

arc hyp

sin

=

sinh⁻¹0.5 =

D1

0.5

=

0.481211825

11

6 + 4 = ANS

ONC

6

+

4

=

10.

ANS + 5 =

+

5

=

15.

8 × 2 = ANS

8

×

2

=

16.

ANS² =

x²

=

256.

12

a/b

ab/c

 $3\frac{1}{2} + \frac{4}{3}$ =

ONC

3

2ndF

ab/c

1

▼

2

▶

=

+

ab

4

▼

3

=

4

5

6

onble

29

6

onble

4.833333333

LINE

3

ab

1

ab

2

+

4

ab

3

=

4r5r6*

onble

29r6

onble

4.833333333

13

◀BIN

▶PEN

◀OCT

▶HEX

▶DEC

NEG

NOT

AND

OR

XOR

XNOR

DEC (25) → BIN

ONC

2ndF

▶DEC

25

=

11001

HEX (1AC) → BIN

2ndF

▶BIN

1AC

=

110101100

→ PEN

2ndF

▶PEN

=

3203

→ OCT

2ndF

▶OCT

=

654

→ DEC

2ndF

▶DEC

=

428.

BIN (111) → NEG [BIN]

2ndF

▶BIN

NEG

111

=

1111111001

1011 AND 101 =

2ndF

▶BIN

1011

AND

101

=

1

5A OR C3 = [HEX]

2ndF

▶HEX

5A

OR

C3

=

DB

NOT 10110 = [BIN]

2ndF

▶BIN

NOT

10110

=

1111101001

24 XOR 4 = [OCT]

2ndF

▶OCT

24

XOR

4

=

20

B3 XNOR 2D = [HEX]

2ndF

▶HEX

B3

XNOR

2D

=

FFFFFFF61

→ DEC

2ndF

▶DEC

=

-159.

14

D/YMS

↔DEG

7°31'49.44" → [10]

ONC

7

D/YMS

31

D/YMS

49.44

D/YMS

=

7

663

1250

123.678 → [60]

123.678

2ndF

↔DEG

=

123°40'40.8"

3h 30m 45s + 6h 45m 36s = [60]

3

D/YMS

30

D/YMS

45

+

6

D/YMS

45

D/YMS

36

=

10°16'21."

1234°56'12" + 0°0'34.567" = [60]

1234

D/YMS

56

D/YMS

12

+

0

D/YMS

34.567

D/YMS

=

1234°56'47."

3h 45m − 1.69h = [60]

3

D/YMS

45

−

1.69

=

2°3'36."

sin 62°12'24" = [10]

sin

62

D/YMS

12

=

0.884635235

15

↔rθ

↔XY

(x¹, y¹)

 $\begin{pmatrix} x = 6 \\ y = 4 \end{pmatrix} \rightarrow \begin{pmatrix} r = [\text{°}] \\ \theta = [\text{°}] \end{pmatrix}$

ONC

6

(

r

)

4

(

θ

)

=

2ndF

↔rθ

=

7.211102551

33.69006753

 $\begin{pmatrix} r = 14 \\ \theta = 36 \text{ [°]} \end{pmatrix} \rightarrow \begin{pmatrix} x = 14 \\ y = 36 \end{pmatrix}$

14

(

r

)

36

(

θ

)

=

2ndF

↔XY

=

11.32623792

8.228993532

16

MDF

→ [FIX, TAB = 1]

ONC

SETUP

1

0

1

=

0.0

5 ÷ 9 = ANS

5

÷

9

=

5

9

onble

0.6

ANS × 9 =

×

9

=

*1

5

9

onble

0.6

→ [MDF]

2ndF

MDF

=

3

5

onble

5

4

→ [NORM1]

SETUP

1

3

=

5.4

*1 $\frac{5}{9} \times 9 = 5.5555555555555 \times 10^{-1} \times 9$

5

9

*2 $\frac{3}{5} \times 9 = 0.6 \times 9$

17

P/FACT

12210 =

ONC

12210

=

12'2'10.

2ndF

P/FACT

=

2×3×5×11×37

2ndF

P/FACT

=

12'2'10.

1234567 =

1234567

=

1'234'567.

2ndF

P/FACT

=

127×(9721)

18

MODE

(STAT)

INS-D

DATA
20
30
40
40
50

20 [ENTER] 30 [ENTER] 40 [↵] 2 [ENTER] 50 [ENTER]

↑

X

FRQ

3

40

4

50

5

2

1

↓

DATA
30
40
40
45
45
45
60

2ndF (↵) 3 [ENTER] 2ndF (DEL) 2ndF (▼) (ALPHA) (INS-D) [ENTER] 50 [ENTER]

↑

X

FRQ

3

45

4

60

5

3

1

↓

MODE

(STAT)

DATA

STAT

x'

y'

DATA
95
80
80
75
75
75
50

2ndF (↵) 95 [ENTER] 2ndF (↵) 80 [ENTER] 2ndF (↵) 80 [ENTER] 2ndF (↵) 75 [ENTER] 2ndF (↵) 75 [ENTER] 2ndF (↵) 75 [ENTER] 2ndF (↵) 50 [ENTER]

↑

X

FRQ

3

75

4

50

5

3

1

↓

DATA

Stat 0[S.D]

0.

ALPHA

STAT

0

$$\frac{(95 - \bar{x})}{s.x} \times 10 + 50 =$$

n

=

7.

\bar{x}

=

75.7142857

s.x

=

13.3630621

↓ s.x

=

12.3717915

↑ $\sum x$

=

530.

↑ $\sum x^2$

=

41'200.

↑ x_{min}

=

50.

↑ Q_1

=

75.

↑ Med

=

75.

↑ Q_3

=

80.

↑ x_{max}

=

95.

ALPHA

STAT

1

ONC

(

95

−

)

ALPHA

STAT

2

1

=

1

÷

ALPHA

STAT

2

2

=

×

10

+

50

=

64.43210706

Function	Dynamic range
sin x, cos x, tan x	DEG: $ x < 10^{10}$ (tan x: $ x \neq 90(2n - 1)^{\circ}$)* RAD: $ x < \frac{\pi}{2} \times 10^{10}$ (tan x: $ x \neq \frac{\pi}{2}(2n - 1)^{\circ}$)* GRAD: $ x < \frac{10}{9} \times 10^{10}$ (tan x: $ x \neq 100(2n - 1)^{\circ}$)*
sin ⁻¹ x, cos ⁻¹ x	$ x \leq 1$
tan ⁻¹ x, $\sqrt[n]{x}$	$ 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: y = 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 ≠ 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	$-10^{100} < x \leq 230.2585092$
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^{90}$
x ³	$ x < 2.15443469 \times 10^{33}$
\sqrt{x}	$0 \leq x < 10^{100}$
x ⁻¹	$ x < 10^{100}$ (x ≠ 0)
n!	$0 \leq n \leq 69^{\circ}$
nPr	$0 \leq r \leq n \leq 9999999999^{\circ}$ $(n - r)! < 10^{100}$
nCr	$0 \leq r \leq n \leq 9999999999^{\circ}$ $0 \leq r \leq 69$ $(n - r)! < 10^{100}$
↔DEG, D°M'S	$0^{\circ}0'0.00001'' \leq x < 10000^{\circ}$
x, y' → r, θ	$\sqrt{x^2 + y^2} < 10^{100}$
r, θ → 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 _n , nLCM _n	$0 < n < 10^{10}^{\circ}$
R.Int(m, n)	$ m \leq 9999999999^{\circ}$ $ n \leq 9999999999^{\circ}$ $m < n, n - m < 10^{10}$
→ DEC → BIN → PEN → OCT → HEX AND OR XOR XNOR	DEC: $ x \leq 9999999999$ BIN: $1000000000 \leq x \leq 1111111111$ $0 \leq x \leq 1111111111$ PEN: $2222222223 \leq x \leq 4444444444$ $0 \leq x \leq 2222222222$ OCT: $4000000000 \leq x \leq 7777777777$ $0 \leq x \leq 3777777777$ HEX: FDABF41C01 ≤ x ≤ FFFFFFFF $0 \leq x \leq 2540BE3FF$
NOT	BIN: $1000000000 \leq x \leq 1111111111$ $0 \leq x \leq 1111111111$ PEN: $2222222223 \leq x \leq 4444444444$ $0 \leq x \leq 2222222221$ OCT: $4000000000 \leq x \leq 7777777777$ $0 \leq x \leq 3777777777$ HEX: FDABF41C01 ≤ x ≤ FFFFFFFF $0 \leq x \leq 2540BE3FE$

20

$$\bar{x} = \frac{\sum x}{n}$$
$$s.x = \sqrt{\frac{\sum x^2 - n\bar{x}^2}{n - 1}}$$
$$\bar{y} = \frac{\sum y}{n}$$
$$s.y = \sqrt{\frac{\sum y^2 - n\bar{y}^2}{n - 1}}$$

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