from a positive to a negative or vice versa.
Example 5 [+/-] − -5

(30) [RND] [•] Decimal point/random number key
[•] : Example: 12.3 − [1][2][•][3]
0.7 − [•][7]

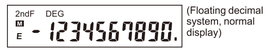
[2ndF][RND] These keys are used to generate uniform random numbers from 0.000 to 0.999.

Note: Random number generation is not possible when binary/octal /hexadecimal system mode is set.

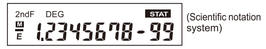
(31) [%] [=] Equals/percent key
[=] : Completes four arithmetic calculations (+, -, x, ÷), $\sqrt[2]{}$, $\sqrt[y]{}$, and complex number calculations.
[2ndF][%] Used for the percentage calculation and add-on/discount calculation.

DISPLAY

(1) Display format



(Floating decimal system, normal display)



(Scientific notation system)

(2) Symbols

- : Minus symbol
Indicates that the number in the display following the "-" is a negative.

M : Memory symbol
Appears when a number is stored in the memory.

E : Error symbol
Appears when an overflow or an error is detected.

2ndF: 2nd function designation symbol
Appears when the 2nd function is designated.

HYP: Hyperbolic function designation symbol
Appears when hyperbolic function is designated.

DEG: Degree mode symbol
Appears when the degree mode is designated or shows that the angular mode of the converted result is in degree.

RAD: Radian mode symbol
Appears when the radian mode is designated or shows that the angular mode of the converted result is in radian.

GRAD: Grad mode symbol
Appears when the grad mode is designated or shows that the angular mode of the converted result is in grad.

( ): Parenthesis symbol
Appears when a calculation with parenthesis is performed by depressing the [(] key.

BIN : Appears when the binary system mode is set or shows the displayed number is a binayy number.

OCT : Appears when the octal system mode is set or shows the displayed number is an octal number.

HEX : Appears when the hexadecimal system mode is set or shows the displayed number is a hexadecimal number.

CPLX : Appears when the complex number mode is set.

STAT : Appears when the statistical calculation mode is set.

(3) Display system

This machine displays a calculation result (x), if it is within the following range, in the floating decimal point system.

$0.000000001 \leqq |x| < 9999999999$

And otherwise the machine displays x in the scientific notation system.
However a calculation result within the above range is also capable of being displayed in the scientific notation system by pressing the [F-E] key.

Example: [2ndF][TAB][9]
[•][5][÷][9][=] − 0.055555556
(The 10th decimal place is rounded.)

[F←E] − 5.5555555-02
(The 10th decimal place of the mantissa is rounded.)
[F←E] − 0.055555556

[2ndF][TAB][•] − 0.055555555
This is determined by the calculator in the form of $5.55555555556 \times 10^{-2}$. Rounding the 11th digit of the mantissa results in $5.555555556 \times 10^{-2}$.
When changed to the floating decimal display, the rounded parts may not be displayed as in this example.

BATTERY REPLACEMENT

If the display becomes dark or dim,replace the batteries with new ones according to the following procedure.

Battery: LR44 x 2 or
AG13 x 2

1. Turn off the calculator.
2. Remove the battery cover.
3. Replaces the batteries (+ side must be up)
4. Push in the battery cover.
5. After the replacement, press the [OFF] and [ON/C] keys in this order to clear the calculator.

When the batteries are correctly installed "DEG 0." will be displayed. (If the display shows nothing or a meaningless symbol, or the keys become inoperative, remove the batteries and install them again.Press [OFF] and [ON/C] keys in this order and check the display again.)

Note: - wipe off the surface of the new batteries with dry cloth and then install the betteries.
- Always replace both of the batteries at the same time.

IMPORTANT! Retain for future reference

WARNING!
Contains Button Battery

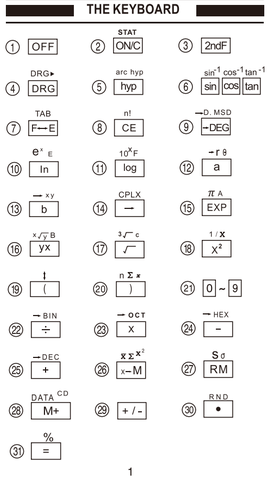
- Keep new and used batteries away from children.
- Dispose of used batteries immediately. • A Button battery can cause serious injuries if it is swallowed or placed inside any part of the body. • If you think that batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention. • Non-rechargeable batteries are not to be recharged. • Rechargeable batteries are to be removed from the item before being charged. • Rechargeable batteries are only to be charged under adult supervision. • Different types of batteries or new and used batteries are not to be mixed.
- Only batteries of the same equivalent type are to be used.
- Batteries are to be inserted with the correct polarity +/-.
- Exhausted batteries are to be removed from the item. • The supply terminals are not to be short-circuited. • Always remove the batteries if the item is not to be used for some time. • Used batteries and broken electrical and electronic items must be disposed of at an approved collection point. Do not dispose of with household waste. • Protect the item from water or dampness. • To change replaceable batteries - Remove the battery cover using the appropriate tool (eg, screwdriver, dual simultaneous action) Remove the battery from the holder and replace with a new battery paying attention to the correct polarity+/-. Replace the battery cover and screw down securely using appropriate tool or repeat dual simultaneous action sequence. Check the battery cover is secure.

14-BB2020

SCIENTIFIC CALCULATOR

USER'S MANUAL

THE KEYBOARD



OPERATING CONTROLS

① [OFF] Power off key
When this key is depressed, the calculator is turned off.
Automatic Power-Off Function (A. P. O.)
This calculator is automatically turned off approximately 8 minutes after the last key operation to save the batteries.

② [STAT ON/C] Power on and clear/statistical calculation mode key
[ON/C] : Push this key to turn the calculator on. It is ready for operation. When pushed during operation it clears the calculator except for the memory.
[2ndF][STAT] : Statistical program will be activated. When the calculator is set to the statistical calculation mode through these keys the symbol "STAT "appears, and at the same time the numerical values and calculation commands, except for memory contents are cleared. Meanwhile, in the statistical calculation mode the [)], [X-M] , [RM] and [M+] keys work as the [n] [X] [S] and [DATA] keys, respectively.
And pushing these keys immediately after the [2ndF] key they work as the [x̄,x²] [x̄,x'] [σ] and [CD] keys.

③ [2ndF] 2nd function designation key

④ [DRG▸] Degree/Radian/Grad selector/angular unit conversion key
[DRG] Used for calculation of trigonometric, inverse trigonometric and coordinate conversion. The DRG key changes the angular mode.

DEG → RAD → GRAD
(Press [DRG])

Ex. DEG→GRAD: Depress the [DRG] key twice.
"DEG" mode - Entries and answers are in decimal degrees.
"RAD" mode - Entries and answers are in radians
"GRAD"mode - Entries and answers are in grads.

$(100^g = 90^\circ = \frac{\pi}{2})$

[2ndF][DRG▸] It has the function of the [DRG] key as well as converting the displayed number into a number of the specified angular mode.

⑤ [arc hyp hyp] Hyperbolic/arc hyperbolic Key

⑥ [sin⁻¹ sin] [cos⁻¹ cos] [tan⁻¹ tan] Trigonometric/inverse trigonometric function key

⑦ [TAB F←E] Display format exchange /Tabulation key
[F←E] When a calculation result is displayed in the floating decimal point system, pushing the key displays the result in the scientific notation system Pushing the key once more displays the result in the floating decimal point system again
[2ndF][TAB] To specify the number of decimal digits in the calculation result.

⑧ [n! CE] Clear entry/Factorial key

[CE] : Used to clear an incorrectly entered number.
123 [+] 455 [CE] 456 [=] − 579.
[2ndF][n!] : Calculates the factorial of the displayed number. Factorial of n(nl) $n \cdot (n-1) \cdot (n-2) \cdots\cdots 2 \cdot 1$

⑨ [→DMSD →DEG] Degree/minute/second ⟷ Decimal degrees conversion/hexadecimal number key
[→DEG][2ndF][→DMS] : To convert degree/minute/second to decimal degree and vice versa.

[D] : Hexadecimal number "D" key. (effective only in hexadecimal number model - HEX mode)

⑩ [e^x ln] Natural logarithm/antilogarithm and hexadecimal number key
[ln] : Used to obtain the logarithm base e (e = 2.718281828).
[2ndF][e^x] : Calculates the antilogarithm base e of the displayed number.
[E] : HEX mode
Hexadecimal number "E" key.

⑪ [10^x log] Common logarithm/antilogarithm and hexadecimal number key
[log] : Used to obtain the logarithm with the base of 10.
[2ndF][10^x] : Calculates the antilogarithm with the base of 10.
[F] : HEX mode
Hexadecimal number "F" key.

⑫ [→r θ a] Real number enter/coordinate conversion key
[a] : • This is used when the real parts of complex numbers are to be inputted and when calling the real parts of calculation results.
• This is used during coordiante conversions when the X coordinate of the Rectangular coor dinates (X,Y) is input or when the r of the polar coordinates (r, θ) is input. It is also used for calling the calculated values of X or r.
[2ndF][→r θ] : Converts rectangular coordinate into polar coordinate.

⑬ [→xy b] Imaginary number enter/coordinate conversion key
[b] : • This is used when the imaginary parts of complex numbers are to be input and when calling the imaginary parts of the calculation results.
• This is used during coordinate conversions when the Y coordinate of the Rectangular coordinates (x,Y) is input or when the e of the polar coordinates (r, θ) is input. It is also used for calling the calculated values of Y or θ .

[2ndF][→xy] : Converts polar coordinate into rectangular coordinate.

⑭ [CPLX →] Right shift/complex number mode key
[→] : Example

Key in	Display
① 12356 [→] [→]	− 123.
	45 − 12345
② 5 [EXP] 24 [→] [→]	− 5. 00
	35 − 5. 35

[2ndF][CPLX] : Used to set the complex number mode.

⑮ [π A EXP] Enter exponent/Pi and hexadecimal number key
[EXP] :To enter number in scientific notation.
[2ndF][π] :The constant π (π = 3.141592654) is entered.

[A] : HEX mode
Hexadecimal number "A" key.

⑯ [x√y B yx] $y^{\frac{1}{x}}$ and hexadecimal number key
[yx] : Raises a number to a power.
[2ndF][x√y] : Calculates the Xth root of Y.

[B] : HEX mode
Hexadecimal number "B" key.

⑰ [³√ c √] Square root/cube root and hexadecimal number key
[√] : Calculates the square roof of the number displayed.
[2ndF][³√] : Calculates the cube root of the number displayed.
[C] : HEX mode
Hexadecimal number "C" key.

⑱ [1/x x²] Square/reciprocal key
[x²] : Calculates a square of the number displayed.
[2ndF][1/x] : Calculates the reciprocal of the number displayed.

⑲ [(!] Open parenthesis/exchange key
[(] : Used to open parenthesis.

[2ndF][!] Used to exchange the number being displayed with the number stored in the working register. (x ⟷ y)

⑳ [n Σ x)] Close parenthesis/statistical calculation key

[)] : Used to close parenthesis.
When the statistical mode is set,
[n] : Displays the number ot samples
: entered.(n)
[2ndF][Σ+] : Used to obtain the sum of the date (Σ x).

㉑ [0 ~ 9] Number keys
Used to enter numbers.

㉒ [→BIN ÷] Division/binary nember mode key
[÷] : Depressed for division.
: Used to set the binary system mode.
[2ndF][→BIN] : Converts the number displayed into a number in base 2.

㉓ [→OCT X] Multiplication/octal number mode key
[X] : Depressed for multiplication.
[2ndF][→OCT] : Used to set the octal system mode.
Converts the number displayed into a number in base 8.

㉔ [→HEX −] Minus/hexadecimal number mode key
[−] : Depressed for subtraction.
[2ndF][→HEX] : Used to set the hexadecimal system mode.
Converts the number displayed into a number in base 16.

㉕ [→DEC +] Plus/decimal number mode key
[+] : Depressed for addition.
[2ndF][→DEC] : Used to set the decimal system mode (normal mode).
Converts the number displayed into a number in base 10.

㉖ [x̄ Σ x² x−M] Memory-in/statistical calculation key
Clears the number in the memory and then store the number being displayed in the memory.
To clear the memory depress the [ON/C] key followed by the [x−M] key.

• When the statistical mode is set.

[X] : Used to obtain the mean value of the data. (x̄)
[2ndF][Σ+] : Used to obtain the sum of squares of data. (Σ x²)

㉗ [S σ RM] Recall memory/statistical calculation key
[RM] : Displays the contents of the memory. The contents of the memory remain unchanged after this key operation.

• When the statistical mode is set.

[S] : Used to obtain the standard deviation of the sample of data.
[2ndF][σ] : Used to obtain the standard deviation of the population of data.

㉘ [DATA CD M+] Memory plus/DATA CD key
[M+] : Used to add the number being displayed or a calculated result to the contents of the memory.
When subtracting a number from the memory, depress the [+/-] and [M+] keys in this order.

• When the statistical mode is set.

[DATA] : Used to enter the data (numbers).
[2ndF][CD] : Used to correct the mis-entry. (delete function).

㉙ [+/-] Change sign key
Changes the sign of the number displayed