

SCIENTIFIC CALCULATOR

MODEL EL-510RT

OPERATION MANUAL

INTRODUCTION

Thank you for purchasing the SHARP Scientific Calculator Model EL-510RT. After reading this manual, store it in a convenient location for future reference. Note: • On the sheet with calculation examples is used english notation (with a decimal point). • 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.
- 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.

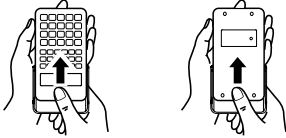
NOTICE

- 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: • 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.

Do not use an object with a breakable or sharp tip. Note that pressing the RESET switch erases all data stored in memory. 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



DISPLAY



- During actual use, not all symbols are displayed at the same time.
- ◀/▶: Appears when the entire equation cannot be displayed. Press ◀/▶ to see the remaining (hidden) section.
- 2ndF: Appears when 2ndF is pressed, indicating that the functions shown in same color are enabled.
- [A]: Indicates that 2ndF ALPHA or (STO) (RCL) has been pressed, and entry (recall) of memory contents and recall of statistics can be performed.
- HYP: Indicates that 2ndF HYP has been pressed and the hyperbolic functions are enabled. If 2ndF 2ndF are pressed, the symbols "2ndF HYP" appear, indicating that inverse hyperbolic functions are enabled.
- FIX / SCI / ENG: Indicates the notation used to display a value.
- DEG / RAD / GRAD: Indicates angular units and changes each time (DRG) is pressed.
- STAT: Appears when statistics mode is selected.
- M: Indicates that a value is stored in the independent memory.
- x/y/r/θ: Appears when the results of coordinate conversions are displayed.

BEFORE USING THE CALCULATOR

Key Notation Used in This Manual

x^2	To specify x^2	: 2ndF x^2
E _{DP}	To specify Exp	: E _{DP}

- Functions that are printed in orange above the key require 2ndF to be pressed first before the key. Numbers for input value are not shown as keys, but as ordinary numbers.

Power On and Off

Press (ON/C) to turn the calculator on, and 2ndF (OFF) to turn it off.

Entering and Correcting the Equation

Cursor keys

- Press ◀ or ▶ to move the cursor. You can also return to the equation after getting an answer by pressing ▶ (◀).
- To delete a number/function, move the cursor to the number/function you wish to delete, then press (DEL). If the cursor is located at the right end of an equation, the (DEL) key will function as a back space key.
- If you need to insert a number, move the cursor to the place immediately after where you wish to insert the number then enter the number.

Clearing the Entry and Memories

Operation	Entry (Display)	M ⁺	X, Y, r, θ ² STAT, ANS
(ON/C)	○	x	x
2ndF (CA)	○	x	○
RESET switch	○	○	○

- : Clear x: Retain
- *1 Independent memory M
- *2 Temporary memories (X, Y, r, θ), statistical data, and last answer memory

Priority Levels in Calculation

This calculator performs operations according to the following priority:
① Fractions (1/r4, etc.) ② Functions preceded by their argument (x^{-1} , x^2 , n!, etc.)
③ y^x , $\sqrt[n]{}$ 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, etc.)
⑦ nCr, nPr, GCD, LCM ⑧ x, ÷, +, −, =M, M+, M−, ⇒M, ►DEG, ►RAD, ►GRAD, DATA, CD, →rθ, →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 (NORMAL): 2ndF (MODE) (0) (default)
Used to perform arithmetic operations and function calculations.

Statistics mode (STAT): 2ndF (MODE) (1)
Used to perform statistical calculations.

When executing mode selection, temporary memories, statistical variables, statistical data and last answer memory will be cleared even when reselecting the same mode.

Selecting the Display Notation and Decimal Places

Four display notation systems are used to display calculation results: Floating point; Fixed decimal point; Scientific notation; and Engineering notation.
When the FIX, SCI, or ENG symbol is displayed, the number of decimal places (TAB) can be set to any value between 0 and 9. Displayed values will be reduced to the corresponding number of digits.

100000÷3=	(ON/C) 100000 (÷) 3 (=)	33'333.33333
[Floating point]	2ndF (FSE)	33'333.33333
→[Fixed decimal point]	2ndF (TAB) 2	33'333.33
[TAB set to 2]	2ndF (FSE)	3.33×10 ⁴
→[Scientific notation]	2ndF (FSE)	33.33×10 ³
→[Engineering notation]	2ndF (FSE)	33'333.33333
→[Floating point]	2ndF (FSE)	

- If the value for floating point system does not fit in the following range, the calculator will display the result using scientific notation system:
0.000000001 ≤ x ≤ 9999999999

Determination of the Angular Unit

In this calculator, the following three angular units (degrees, radians, and grads) can be specified.



SCIENTIFIC CALCULATIONS

- Press 2ndF (MODE) (0) to select the normal mode.
- In each example, press (ON/C) to clear the display.
- If the FIX, SCI, or ENG indicator is displayed, clear the indicator by pressing 2ndF (FSE).

Arithmetic Operations

- The closing parenthesis) just before (=) or (M+) may be omitted.
- 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 the constants calculations, constants will be displayed as K.

Functions

- Refer to the calculation examples of each function.

Random Numbers

A pseudo-random number with three significant digits can be generated by pressing 2ndF (RNDM) (=). To generate the next random number, press (=). You can perform this function in the normal and statistics modes.
• Random numbers use memory Y. Each random number is generated on the basis of the value stored in memory Y (pseudo-random number series).

Angular Unit Conversions

Each time 2ndF (DRG) are pressed, the angular unit changes in sequence.

Memory Calculations

This calculator has four temporary memories (X, Y, r, θ), one independent memory (M) and one last answer memory (ANS). Independent memory and temporary memories are only available in the normal mode.

Temporary memories (X, Y, r, θ)

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 2ndF (ALPHA) and a variable key.
Use of (RCL) or 2ndF (ALPHA) will recall the value stored in memory using up to 14 digits.

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.

Last answer memory (ANS)

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

Chain Calculations

This calculator allows the previous calculation result to be used in the following calculation. The previous calculation result will not be recalled after entering multiple instructions.

Fraction Calculations

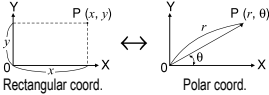
This calculator performs arithmetic operations and memory calculations using fractions, and conversion between a decimal number and a fraction.
• If the number of digits to be displayed is greater than 10, the number is converted to and displayed as a decimal number.

Time, Decimal and Sexagesimal Calculations

Conversion between decimal and sexagesimal numbers can be performed. In addition, the four basic arithmetic operations and memory calculations can be carried out using the sexagesimal system.

Coordinate Conversions

- Before performing a calculation, select the angular unit.



- The calculation result is automatically stored in memories X, Y, r, θ.

Calculating the Greatest Common Divisor (GCD)

What is the GCD of 24 and 36?	(ON/C) 24	
	2ndF (GCD) 36	
	(=)	12

Calculating the Least Common Multiple (LCM)

What is the LCM of 15 and 9?	(ON/C) 15	
	2ndF (LCM) 9	
	(=)	45

STATISTICAL CALCULATIONS

Press 2ndF (MODE) (1) to select statistics mode. The following statistics can be obtained:

\bar{x}	Mean of samples (x data)
s_x	Sample standard deviation (x data)
σ_x	Population standard deviation (x data)
n	Number of samples
Σx	Sum of samples (x data)
Σx^2	Sum of squares of samples (x data)

Entered data are kept in memory until 2ndF (CA) or 2ndF (MODE) (1) are pressed. Before entering new data, clear the memory contents.

Data Entry

Data (DATA)
Data (RCL) frequency (DATA) (To enter multiples of the same data)

Data Correction

Correction prior to pressing (DATA) immediately after a data entry:
Delete incorrect data with (ON/C), then enter the correct data.
Correction after pressing (DATA):
Press (▶) to confirm the latest entry and press 2ndF (CD) to delete it.

Statistical Calculation Formulas

- In the statistical calculation formulas, an error will occur when:
• The absolute value of the intermediate result or calculation result is equal to or greater than 1×10^{10} .
- The denominator is zero.
- An attempt is made to take the square root of a negative number.

ERROR 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

Syntax error (Error 1):
• An attempt was made to perform an invalid operation. Example: 2 2ndF (→rθ)
Calculation error (Error 2):
• The absolute value of an intermediate or final calculation result equals or exceeds 10^{10} .
• An attempt was made to divide by 0 (or an intermediate calculation resulted in zero).
• The calculation ranges were exceeded while performing calculations.
Depth error (Error 3):
• The available number of buffers was exceeded. (There are 10 buffers* for numeric values and 24 buffers for calculation instructions) *5 buffers in STAT mode
Equation too long (Error 4):
• The equation exceeded its maximum input buffer (159 characters). An equation must be shorter than 159 characters.

Calculation Ranges

- Within the ranges specified, this calculator is accurate to ±1 of the least significant digit of the mantissa. However, a calculation error increases in continuous calculations due to accumulation of each calculation error. (This is the same for x^y , $\sqrt[n]{}$, 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:
 $\pm 10^{-99} \sim \pm 9.999999999 \times 10^{99}$ 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.

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 Batteries

If the display has poor contrast or nothing appears on the display even when (ON/C) is pressed in dim lighting, it is time to replace the batteries.

Cautions

- An exhausted battery left in the calculator may leak and damage the calculator.
- 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 leaking batteries, remove them and store in a safe place.
- Do not leave exhausted batteries inside the product.
- Keep batteries out of the reach of children.
- 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 screws. (Fig. 1)
 3. Lift the battery cover to remove.
 4. Remove the used battery by prying it out with a ball-point pen or other similar pointed device. (Fig. 2)
 5. Install one new battery. Make sure the "+" side is facing up.
 6. Replace the cover and screws.
 7. Press the RESET switch with the tip of a ball-point pen or similar object.
- 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.

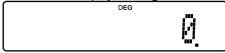


Fig. 1

Fig. 2



Automatic Power Off Function

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

SPECIFICATIONS

Calculations:	Scientific calculations, statistical calculations, etc.
Internal calculations:	Mantissas of up to 14 digits
Pending operations:	24 calculations, 10 numeric values (5 numeric values in STAT mode)
Power source:	Built-in solar cells 1.5V \pm (DC): Alkaline batterie (LR44 or equivalent) \times 1
Operating time:	Approx. 3,000 hours when continuously displaying 55555 at 25°C (77°F) (varies according to use and other factors)
Operating temperature:	0°C \sim 40°C (32°F \sim 104°F)
Dimensions:	76 mm \times 135 mm \times 10 mm
Weight:	Approx. 66 g (with batteries)
Accessories:	Battery \times 1 (installed), operation manual and hard case

FOR MORE INFORMATION ABOUT SHARP CALCULATORS VISIT:

<http://www.sharp-calculators.com>

CALCULATION EXAMPLES

[1]

45+285 \div 3=	ON/C 45 $+$ 285 \div 3 $=$	140.
18+6=	() 18 $+$ 6 $=$	
15-8=	() 15 $-$ 8 $=$	3.428571429
42 \times (-5)+120=	42 \times () (-) 5 $+$ 120 $=$	-90.
(5 \times 10 ³) \div (4 \times 10 ⁻³)=	5 Exp 3 \div 4 Exp () 3 $=$	1'250'000.
34+57=	34 $+$ 57 $=$	91.
45+57=	45 $+$ 57 $=$	102.
68 \times 25=	68 \times 25 $=$	1'700.
68 \times 40=	40 $=$	2'720.

[2]

sin60 $^\circ$ =	ON/C \sin 60 $=$	0.866025403
cos $\frac{\pi}{4}$ [rad]=	DRG \cos () π \div 4 $=$	0.707106781
tan ⁻¹ 1=[g]	DRG 2ndF \tan^{-1} 1 $=$	50.
(cosh 1.5 + sinh 1.5) ² =	ON/C () hyp \cos 1.5 $+$ hyp \sin 1.5 $=$	20.08553692
tanh ⁻¹ $\frac{5}{7}$ =	2ndF arc hyp \tan () 5 \div 7 $=$	0.895879734
ln 20 =	2ndF \ln 20 $=$	2.995732274
log 50 =	2ndF \log 50 $=$	1.698970004
e ³ =	2ndF e^x 3 $=$	20.08553692
10 ^{1.7} =	2ndF 10^x 1.7 $=$	50.11872336
$\frac{1}{6} + \frac{1}{7}$ =	6 2ndF x^{-1} $+$ 7 2ndF x^{-1} $=$	0.309523809
8 ⁻² - 3 ⁴ \times 5 ² =	8 y^x () 2 $-$ 3 y^x 4 \times 5 2ndF x^2 $=$	-2'024.984375
(123) ^{$\frac{1}{4}$} =	12 y^x 3 y^x 4 2ndF x^{-1} $=$	6.447419591
8 ³ =	8 2ndF x^3 $=$	512.
$\sqrt{49 - 4} \sqrt{81}$ =	2ndF $\sqrt{}$ 49 $-$ 4 2ndF $\sqrt{}$ 81 $=$	4.
$\sqrt[3]{27}$ =	2ndF $\sqrt[3]{}$ 27 $=$	3.
4! =	4 2ndF $n!$ $=$	24.
$10P_3$ =	10 2ndF nPr 3 $=$	720.
$5C_2$ =	5 2ndF nCr 2 $=$	10.
500 \times 25%=	500 \times 25 2ndF $\%$ $=$	125.
120 \div 400=?%	120 \div 400 2ndF $\%$ $=$	30.
500+(500 \times 25%)=	500 $+$ 25 2ndF $\%$ $=$	625.
400-(400 \times 30%)=	400 $-$ 30 2ndF $\%$ $=$	280.

	$\theta = \sin^{-1}x$, $\theta = \tan^{-1}x$	$\theta = \cos^{-1}x$
DEG	$-90 \leq \theta \leq 90$	$0 \leq \theta \leq 180$
RAD	$-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$	$0 \leq \theta \leq \pi$
GRAD	$-100 \leq \theta \leq 100$	$0 \leq \theta \leq 200$

[3]

90 $^\circ \rightarrow$ [rad]	ON/C 90 2ndF DRG \rightarrow	1.570796327
\rightarrow [g]	2ndF DRG \rightarrow	100.
\rightarrow [$^\circ$]	2ndF DRG \rightarrow	90.
sin ⁻¹ 0.8 = [$^\circ$]	2ndF \sin^{-1} 0.8 $=$	53.13010235
\rightarrow [rad]	2ndF DRG \rightarrow	0.927295218
\rightarrow [g]	2ndF DRG \rightarrow	59.03344706
\rightarrow [$^\circ$]	2ndF DRG \rightarrow	53.13010235

[4]

24 \div (8 \times 2)=	ON/C 8 \times 2 STO M $=$	16.
(8 \times 2) \times 5=	24 \div RCL M $=$	1.5
	RCL M \times 5 $=$	80.
\$150 \times 3:M1	ON/C STO M $=$	0.
+) \$250:M2 =M1+250	150 \times 3 $\text{M}+$	450.
-)M2 \times 5%:Discount	250 $\text{M}+$	250.
Total=M	RCL M \times 5 2ndF $\%$ $=$	35.
	2ndF $\text{M}+$ RCL M $=$	665.
\$1=¥110	110 STO Y $=$	110.
¥26,510= \$?	26510 \div RCL Y $=$	241.
\$2,750=¥?	2750 \times RCL Y $=$	302'500.
r = 3cm	3 STO Γ $=$	3.
πr^2 = ?	π 2ndF ALPHA $=$	
	Γ 2ndF x^2 $=$	28.27433388

$\frac{24}{4+6}$ = 2.4...(A)	24 \div () 4 $+$ 6 $=$	2.4
3 \times (A)+60 \div (A)=	3 \times ANS $+$ 60 \div ANS $=$	32.2

[5]

6+4=ANS	ON/C 6 $+$ 4 $=$	10.
ANS+5	$+$ 5 $=$	15.
44+37=ANS	44 $+$ 37 $=$	81.
$\sqrt{\text{ANS}}$ =	2ndF $\sqrt{}$ $=$	9.

[6]

$3\frac{1}{2} + \frac{4}{3} = [a\frac{b}{c}]$	ON/C 3 ab/c 1 ab/c 2 $+$	4 Γ 5 Γ 6 $*$
$\rightarrow [a.xxx]$	4 ab/c 3 $=$	4.833333333
$\rightarrow [d/c]$	ab/c	29 Γ 6
$10^{\frac{2}{3}}$ =	2ndF 10^x 2 ab/c 3 $=$	4.641588834
$(\frac{2}{3})^{-1}$ =	2 ab/c 3 2ndF x^{-1} $=$	1 Γ 1 Γ 2
$\sqrt{\frac{4}{9}}$ =	2ndF $\sqrt{}$ 4 ab/c 9 $=$	2 Γ 3
$\frac{2+3}{7}$ =	() 2 $+$ 3 $=$	5 Γ 7
$1.25 + \frac{2}{5} = [a.xxx]$	1.25 $+$ 2 ab/c 5 $=$	1.65
$\rightarrow [a\frac{b}{c}]$	ab/c	1 Γ 13 Γ 20
		* 4 Γ 5 Γ 6 = 4 $\frac{5}{6}$

[7]

12 $^\circ$ 39' 18.05"	ON/C 12 DMS 39 DMS 18.05 DMS	
\rightarrow [10]	2ndF \leftrightarrow DEG	12.65501389
123.678 \rightarrow [60]	123.678 2ndF \leftrightarrow DEG	123 $^\circ$ 40'40.8"
3h30m45s +	3 DMS 30 DMS 45 DMS $+$ 6 DMS	
6h45m36s = [60]	45 DMS 36 DMS $=$	10 $^\circ$ 16'21."
3h45m -	3 DMS 45 DMS $-$	1.69 $=$
1.69h = [60]	2ndF \leftrightarrow DEG	2 $^\circ$ 3'36."
sin62 $^\circ$ 12'24" = [10]	\sin 62 DMS 12 DMS 24 DMS	
	$=$	0.884635235

[8]

$\begin{cases} x = 6 \\ y = 4 \end{cases} \rightarrow \begin{cases} r = \\ \theta = [^\circ] \end{cases}$	ON/C 6 2ndF \rightarrow 4 2ndF $\rightarrow r\theta$ 2ndF \leftrightarrow 2ndF \leftrightarrow 2ndF \leftrightarrow	r 7.211102551 θ 33.69006753 r 7.211102551
$\begin{cases} r = 14 \\ \theta = 36[^\circ] \end{cases} \rightarrow \begin{cases} x = \\ y = \end{cases}$	14 2ndF \rightarrow 36 2ndF $\rightarrow xy$ 2ndF \leftrightarrow 2ndF \leftrightarrow	x 11.32623792 y 8.228993532 x 11.32623792

[9]

DATA		
95	2ndF MODE 1	0.
80	95 DATA	n = 1.
80	80 DATA	n = 2.
75	DATA	n = 3.
75	75 RCL 3 DATA	n = 6.
75	50 DATA	n = 7.
50		
\bar{x} =	RCL \bar{x}	75.71428571
σx =	RCL σx	12.37179148
Σx =	RCL Σx	530.
Σx^2 =	RCL Σx^2	41'200.
sx =	RCL sx	13.3630621
sx^2 =	2ndF x^2 $=$	178.5714286

[10]


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

[11]

Function	Dynamic range
DEG:	$ x < 10^{10}$
RAD:	$(\tan x : x \neq 90 (2n-1))^*$
GRAD:	$(\tan x : x \neq \frac{\pi}{2} (2n-1))^*$
sin x, cos x, tan x	$ x < \frac{\pi}{9} \times 10^{10}$ $(\tan x : x \neq \frac{\pi}{9} \times 10^{10} (2n-1))^*$
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	<ul style="list-style-type: none"> • $y > 0$: $-10^{100} < x \log y < 100$ • $y = 0$: $0 < x < 10^{100}$ • $y < 0$: $x = n$ ($0 < x < 1 : \frac{1}{x} = 2n-1, x \neq 0$)*, $-10^{100} < x \log y < 100$
$^x\sqrt{y}$	<ul style="list-style-type: none"> • $y > 0$: $-10^{100} < \frac{1}{x} \log y < 100$ ($x \neq 0$) • $y = 0$: $0 < x < 10^{100}$ • $y < 0$: $x = 2n-1$ $(0 < x < 1 : \frac{1}{x} = n, x \neq 0)$*, $-10^{100} < \frac{1}{x} \log y < 100$
e^x	$-10^{100} < x \leq 230.2585092$
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^{50}$
x^3	$ x < 2.15443469 \times 10^{33}$
\sqrt{x}	$0 \leq x < 10^{100}$
x^{-1}	$ x < 10^{100}$ ($x \neq 0$)
$n!$	$0 \leq n \leq 69^*$
nPr	$0 \leq r \leq n \leq 9999999999^*$ $\frac{n!}{(n-r)!} < 10^{100}$
nCr	$0 \leq r \leq n \leq 9999999999^*$ $0 \leq r \leq 69$ $\frac{n!}{(n-r)!} < 10^{100}$
$\leftrightarrow \text{DEG}, \text{D}^\circ\text{M}'\text{S}$	$0^\circ 0' 0.00001'' \leq x < 10000''$
$x, y \rightarrow r, \theta$	$\sqrt{x^2 + y^2} < 10^{100}$
$r, \theta \rightarrow x, y$	$0 \leq r < 10^{100}$ DEG: $ \theta < 10^{10}$ RAD: $ \theta < \frac{\pi}{180} \times 10^{10}$ GRAD: $ \theta < \frac{10}{9} \times 10^{10}$
$\text{DRG} \blacktriangleright$	DEG→RAD, GRAD→DEG: $ x < 10^{100}$ RAD→GRAD: $ x < \frac{\pi}{2} \times 10^{98}$
$n\text{GCD}_n, n\text{LCM}_n$	$0 < n < 10^{10}^*$

* n, m, r: integer



ENGLISH

Information on the Disposal of this Equipment and its Batteries

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.

Manufactured by:
SHARP CORPORATION
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For EU only:

Imported into Europe by:
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For UK only:

Imported into UK by:
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