Canon

F-603

Scientific Calculator

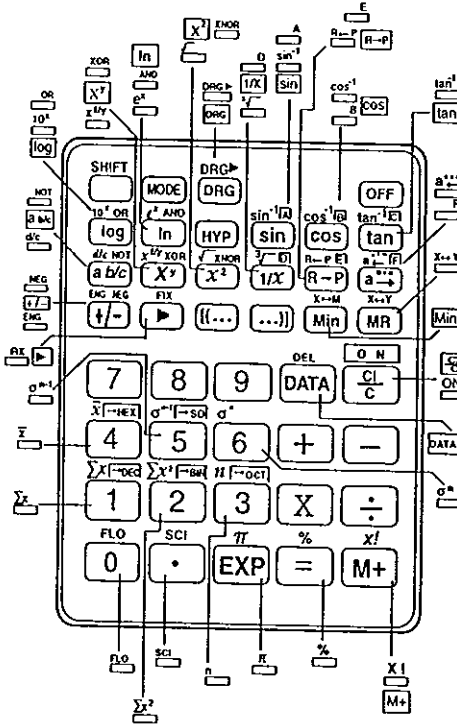
Instructions ..... P. 1 - 29
Mode D'emploi ..... P. 30 - 57
Calculation Example ..... P. 58 - 80

English

Français

Keys

Touches



CONTENTS

I. How to Use the Calculator

1. Keys 4
2. Display Indicators 15
3. Modes 15
4. Calculation Procedure 18
5. Calculation Range 19
6. How to Perform Statistical Calculations 22
7. How to Perform Logical Calculation 24
8. Errors 26

II. Calculation Examples

1. Decimal Calculations 136
2. Binary/Octal/Hexadecimal Calculations 142
3. Basic Function Calculations 145
4. Applied Calculations 151
5. Statistical Calculations 155
6. Logical Calculations 158
7. Calculation Range of Functions 159

III. Power Source 28

IV. Advice and Precautions 28

V. Specifications 28

ENGLISH

I. How to Use the Calculator

Keys Index

CLEAR KEYS

ON — Power on key 4
OFF — Power off key 4
AC/C — Clear indicator/Clear key 4

ENTRY KEYS

0 ~ 9 — Numeric keys 5
• — Decimal point key 5
EXP — Exponential key 5
+/- — Sign change key 5
▶ — Back space key 5

MODE SELECTION KEYS

SHIFT — Shift key 5
MODE — Calculation mode key 6
FLO SCI ENG — Display mode keys 6
FIX — Decimal point selection key 7
DRG / DRG▸ — Degree, Radian, Gradient mode key (DEG RAD GRAD) 8

BASIC KINSTRUCTION KEYS

+ − × ÷ = — Basic function keys 8
% — Percent key 8
(... ...) — Open, close parenthesis keys . . . 9
x⇔y — Reverse key 9
a b/c — Fraction key 10
d/c — Mixed/improper fraction conversion key 11

MEMORY KEYS

M+ — Memory plus key 11
MR — Memory recall key 11
Min — Memory in key 11

X→M	Display/independent memory exchange key 11

Binary/octal/hexadecimal number keys

0 1	Binary number entry keys (BIN). . 12
0 ~ 7	Octal number entry keys (OCT). . 12
0 ~ 9	Hexadecimal number entry keys
A B C D E F	(HEX) 12
NEG	Complement key . . . . . 13 (NEG : Negative)

Function keys

X^2	Square key 13
$\sqrt{\ }$	Square root key 13
X^Y	Raising powers key 14
$x^{1/y}$	Multiple root key 14
1/X	Reciprocal key 14
$\sqrt[3]{\ }$	Cubic root key 14
π	Pi key 14
X !	Factorial key 14
sin / $\sin^{-1}$	Sine / Arc sine key 13
cos / $\cos^{-1}$	Cosine / Arc cosine key 13
tan / $\tan^{-1}$	Tangent / Arc tangent key 13
log	Common logarithm key 13
10^x	Common exponential key 13
ln	Natural logarithm key 13
e^x	Exponential function key 13
HYP	Hyperbolic key (HYP) 13
$a^{0\cdots}$ / $a^{0\cdots}$	Sexagesimal ⇄ decimal conversion key 14
R→P / R→P	Rectangular ⇄ polar coordinates key 14

Statistical keys

DATA / DEL	Variable entry/variable correction key 14

Sum key 14
Square sum key 14
Number of data key 14
Mean key 14
Standard deviation of sample key . 14
Standard deviation population parameter key 14

Logical calculation keys

AND key 14
OR key 14
XOR key 14
XNOR key 14
NOT key 14

1. Keys

Power ON, OFF and Clear Keys

ON **Power ON Key:** Turn the calculator on or restarts calculation when the display goes out automatically by Auto Power Off Function.

- All registers except the memory register are cleared when power is turned on.
- Auto Power Off Function:
  When the calculator is not used for about 10 minutes, the display is automatically turned off to save power.

OFF **Power OFF Key:** Turns off the power supply. This action clears only the display register.

C **Clear Indicator/Clear Key:** When C is pressed right after entering numbers,it clears those numbers just entered.

• When [AC] is pressed after [+], [−], [×], [÷], or [=] or when it is pressed twice successively, it clears the contents of all registers except the memory.

Numeric Entry Keys

[0] ~ [9] **Numeric Keys:** Enter numbers.

[•] **Decimal Point Key:** Enters a decimal point.

[EXP] **Exponential Key:** Used to enter exponents.

Example: 35×10^{43} → [3][5][EXP][4][3]

(35.43)

[+/-] **Sign Change Key:** For changing the sign (+ or −) of the displayed mantissa and exponents.

[▶] **Back Space Key:** Clears the last digit entered from the display and shifts other displayed numbers 1 digit to the right.

Example:

Value	Operation	Dsiplay
12345	[1][2][4] incorrect entry	124.
	[▶]	12.
	[3][4][5]	12345.

Mode Selection Keys

[SHIFT] **Shift Key:** For performing function indicated above the keys. These functions are shown with asterisks (*) in the explanations below.

Example: $\sin^{-1}$ 0.5 → [•][5][SHIFT][$\sin^{-1}$]

MODE **Calculation Mode Key:** Specifies the calculation mode. Depressing 1 ~ 5 after this key sets the calculation mode as specified below.

Key Operation	Mode	Display Indicator
MODE 1 (DEC)	Decimal Calculation Mode	DEG
MODE 2 (BIN)	Binary Calculation Mode	BIN
MODE 3 (OCT)	Octal Calculation Mode	OCT
MODE 4 (HEX)	Hexadecimal Calculation Mode	HEX
MODE 5 (SD)	Statistical Calculation Mode	SD DEG

FLO SCI ENG ***Display Mode Key:** Changes the display mode. The display mode rotates each time this key is depressed as follows.

FLO ..... Floating Mode
SCI ..... Scientific Exponential Mode
ENG ..... Engineering Exponential Mode

Example

Key Operation	Display	Explanation
(SHIFT FLO)		(Floating Mode)
1 2 3 4 5		Floating Mode
6 7 8 ×		
1 0 =	123456780.	
SHIFT SCI	1.2345678 08	Scientific Exponential Mode
SHIFT ENG	123.45678 06	Engineering Exponential Mode

• Display Range

Scientific Exponential

Mode . . . . . $x = 0$

and $10^{-99} \leq |x| < 10^{100}$

Engineering Exponential

Mode . . . . . $x = 0$

and $10^{-99} \leq |x| < 10^{100}$

Exponent: Multiple of 3

Mantissa: Less than 1000

• In the floating mode the calculation results are displayed as follows:

$10^{10} \leq |x| < 10^{100}$ . . . . . Exponential Display

$10^{-99} \leq |x| < 10^{-9}$ . . . . . Exponential Display

$x = 0$ and $10^{-9} \leq |x| < 10^{10}$ . . . . . Floating Display

FIX • **Decimal Point Selection Key:** Specifies the number of decimal digits in the mantissa of the decimal calculation results. Depressing [0] – [9] or [•] after this key specifies the number of decimal digits as follows:

SHIFT FIX [0] . . . . . 0 decimal digit

SHIFT FIX [1] . . . . . 1 decimal digit

SHIFT FIX [9] . . . . . 9 decimal digits

SHIFT FIX [•] . . . . . Resets the decimal specification

Example:

Key Operation	Display	Explanation
SHIFT FIX 3	0.000	3 digits decimal
1 2 3 4 5		
6 7 8 9 ×	123456789.0	
· 0 0 1 =	123456.789	
SHIFT FIX 0	123457. *1	0 digit decimal
SHIFT FIX 5	123456.7890 *2	5 digits decimal

*1 The displayed value is rounded up within the specified range, but the actual calculation result is retained in the register.

*2 The number is displayed with left justification. In this case, 5 decimal digits are specified, but only the 10 most significant digits are displayed. The 5th decimal digit is not displayed.

DRG **Degree/Radian/Gradient Mode Key:** For changing angle units.

DRG▸ ***Angle Unit Conversion Key:** For converting angle values to different units when used with SHIFT.

- The relationship of units is:

$200^{GRAD} = 180^{\circ} = \pi^{RAD}$

Basic Instruction Keys

+ − × ÷ = **Basic Function Keys:** Used for basic arithmetic calculation. Press keys as they are written.

% ***Percent Key:** Used for percentage, add-on and discount calculations.

- Press this key after entering numeric data to display 1/100 of the input number.

[(...] [...)] Open, close Parenthesis Keys: For performing parenthesis calculations where numbers and instructions to be stored in the register are within 6 levels.

Example:

2 x (3 + 4) = 14	[2] [x] [(...] [3] [+] [4] [...)] [=] (14.)
1 + [(4 – 3.6 + 5) x 0.8 – 6] x 4.2 = –6.056	[1] [+] [(...] [(...] [4] [–] [3] [•] [6] [+] [5] [...)] [x] [•] [8] [–] [6] [...)] [x] [4] [•] [2] [=] (–6.056)

- However, up to 15 consecutive open parentheses can be used at one time.
  Example: 5 X (((. . . ((4 + 2) x 3) + 8 . . .
  (Up to 15 parentheses)
- [(...] and [...)] are always used together.
  If either key is pressed alone during an operation, the intended result cannot be obtained.
- [(...] key is effective only when depressed immediately after a calculation instruction.
- When [(...] is effective, "0" will be displayed.
  Special parentheses indicators ( ) appear on the display.

[x⇄y] *** Reverse Key:** Reverses the operand and the operator in multiplication and division sequences.

Example: $\frac{789}{123 \times 456} = 0.01406718$

[1] [2] [3] [x] [4] [5] [6] [÷] [7] [8] [9] [SHIFT] [x⇄y] [=]
(0.01406718)

< Fractional Calculations >

It enters fractions and calculates both mixed and improper fractions. Answers are given in mixed fractions.

a b/c **Fraction Key:** Use it to enter fractions for both mixed and improper fractions.

When entering improper fractions (A/B):

A (numerator) → a b/c → B (denominator).

When entering mixed fractions (A B/C):

A (integer) → a b/c → B (numerator) → a b/c → C (denominator)

Fraction 2/3 is displayed as <<2⌟3>>, and 1 2/5 as <<1⌟2⌟5>>.

Example:

Value	Key Operation	Display
$\frac{2}{3}$	2	2.
	a b/c	2 ⌟.
	3	2 ⌟3.
$1\frac{2}{5}$	1	1.
	a b/c	1 ⌟.
	2	1 ⌟2.
	a b/c	1⌟2 ⌟.
	5	1⌟2 ⌟5.

The maximum number of digits for improper fractions are up to 6 digits for the numerator and 3 digits for the denominator, totalling 9 digits. For mixed fractions, up to 3 digits for each integer, numerator and denominator are permitted, but the total must be no more than 8 digits.

- a b/c can convert the results of the fractional calculations to the decimal expression, and vice versa. However, the value in the memory, even after converting to the decimal, is stored in the fractional expression.

  Example: Calculate 1–2/3 + 4–5/6 and convert the result to the decimal point expression.

Operation	Display
1 a b/c 2 a b/c 3 +	1 _ 2 ⌟ 3.
4 a b/c 5 a b/c 6 =	6 _ 1 ⌟ 2.
a b/c	6.5
a b/c	6 _ 1 ⌟ 2.

d/c ***Mixed/Improper Fraction Conversion Key**

It converts mixed fractions to improper fractions and vice versa. It changes alternatively at each time the key is pressed.

Example: Enter 10/3 and convert to the mixed fraction.

Operation	Display
1 0 a b/c 3	10 _ 3.
SHIFT d/c =	3 _ 1 ⌟ 3.
SHIFT d/c	10 _ 3.

Memory Keys

M+ **Memory Plus Key:** For adding numbers to the independent memory.

MR **Memory Recall Key:** For recalling the independent memory contents.

Min **Memory In Key:** For storing the displayed numbers in the independent memory. The former contents will be erased.

X⇔M *** Display/Independent Memory Exchange Key:** For exchanging the displayed number with the contents of the independent memory or vice versa.

Examples Using the Independent Memory

Operation	Display	Contents of the Independent Memory	Explanation
1 2 3	123.	0	
M+	M 123.	123	Stores 123
4 5 6 M+	M 456.	579	Adds 456
MR	M 579.	579	Recall from memory
7 8 9 Min	M 789.	789	Stores 789
3 6 9	M 369.	789	Enter 369
SHIFT X↔M	M 789.	369	Exchange display for memory
CA	M 0.	369	Clears display
Min	0.	0	Clears memory

Binary/Octal/Hexadecimal Number Keys

0 ~ 1 Binary Number Entry Keys

- 2 ~ 9 are ignored in the binary mode.

0 ~ 7 Octal Number Entry Keys

- 8 and 9 are ignored in the OCT mode.

0 ~ 9 A B C D E F Hexadecimal Number Entry Keys

Example:

Value	Operation	Display
AB7C	MODE 4 A B 7 C	(HEX) Ab7C.

NEG *** Complement Key:** It changes to the complement in the binary/octal/hexadecimal modes. When it is pressed again, the complement is changed to the orginal value.

Example 1 **Binary mode** MODE 2

Key operation: 1 0 1 0 1 0 NEG

Display: (1111010110.)

Example 2 **Octal mode** MODE 3

Key Operation: 1 2 3 4 5 6 NEG

Display: (7777654322.)

Example 3 **Hexadecimal mode** MODE 4

Key Operation: 7 8 9 A B C NEG

Display: (FFFF876544.)

Function Keys

For details of function calculation, refer to page 145 function Calculations.

HYP	*Hyperbolic		
sin	Sine Key	$\sin^{-1}$	*Arc Sine Key
cos	Cosine Key	$\cos^{-1}$	*Arc Cosine Key
tan	Tangent Key	$\tan^{-1}$	*Arc Tangent Key
ln	Natural Logarithm Key	log	Common Logarithm Key
e^x	*Exponential Function Key	10^x	*Common Exponential Key
x^2	Square key	$\sqrt{\ }$	*Square Root Key

1/x	Reciprocal Key	$\sqrt[3]{}$	*Cubic Root Key
°'"	Sexagesimal → Decimal Conversion Key	°'"	*Decimal → Sexagescimal Conversion Key
R↔P	Rectangular → Polar Coordinates Conversion Key	R↔P	*Polar → Rectangular Coordinates Conversion Key
x^y	Raising to Power Key	$x^{1/y}$	*Multiple Root Key
π	*Pi Key	x!	*Factorial Key

Statistical Keys

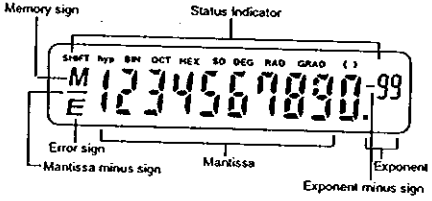
DATA	Variable Entry (DATA)		
DEL	*Variable Correction (DEL) Key		
$\sum x$	*$\sum x$ Key	$\sum x^2$	*$\sum x^2$ Key
n	*n Key	$\bar{x}$	*$\bar{x}$ Key
σ^{n-1}	*σ^{n-1} Key	σ^n	*σ^n Key

Logical Calculation Keys

AND	*AND key	OR	*OR key
XOR	*XOR key	XNOR	*XNOR key
NOT	*NOT key		

Use for the logical calculation in the binary/octal/ hexadecimal modes.

2. Display Indicators



SHIFT : Shift
hyp : Hyperbolic
BIN : Binary Mode
OCT : Octal Mode
HEX : Hexadecimal Mode
SD : Statistic Mode
DEG : Degree Mode
RAD : Radian Mode
GRAD : Gradient Mode
( ) : Calculation in Parentheses

3. Modes

Calculations in Each Mode

Calculation \ Mode		Decimal (DEC)	Binary (BIN)	Octal (OCT)
General Calculation	Basic calculation +, −, ×, ÷	6 levels ○	6 levels ○	6 levels ○
	Cal, incl. Parentheses (.)	○ (15)	○ (15)	○ (15)
	Constant Calculation	○	○	○
	Percentage Calculation %	○	X	X

Calculation \ Mode		Decimal (DEC)	Binary (BIN)	Octal (OCT)
	Fractional Calculation % a·b/c, d/c	O	X	X
Memory Calculation	Independent Memory M, MR, Min, X ↔ M	O	O	O
Function Calculation	One-variable function calc.	O	X	X
	Two-variable function R → P, R→P	O	X	X
	a^x, $\sqrt[x]{\ }$	O	X	X
Statistical Calculation	One-variable statistical Calculation	X	X	X
Logical Calculation	AND, OR, XOR, XNOR, NOT	X	O	O
Complement Calculation	NEG	X	O	O
Entry	0,1	O	O	O
	2 ~ 7	O	X	O
	8, 9	O	X	X
	A ~ F	X	X	X
	[·] [EXP] Key	O	X	X
	[+/-] Key	O	X	X
	[▶] Key	O	O	O
Clear	[AC] Key	O	O	O
Display	FLO, SCI, ENG	O	X	X
Decimal	FIX	O	X	X
Angle	DRG, D.R.G.▶	O	X	X
Reverse	X ↔ Y	O	O	O

Calculation \ Mode		Hexa-decimal (HEX)	Statis-tical (SD)
General Calculation	Basic calculation +, −, ×, ÷	6 levels ○	3 levels ○
	Calc incl. Parentheses (.)(15)(15)	○	○
	Constant Calculation	○	○
	Percentage Calculation %	X	○
	Fractional Calculation% a • b/c, d/c	X	○
Memory Calculation	Idependent Memory M, MR, Min, x ↔ M	○	○
Function Calculation	One-variable function calc.	X	○
	Two-variable function R → P, R ← P	X	○
	x^y, $x^{1/y}$	X	○
Statistical Calculation	One-variable statistical Calculation	X	○
Logical Calculation	AND, OR, XOR, XNOR, NOT	○	X
Complement Calculation	NEG	○	X
Entry	0, 1	○	○
	2 ~ 7	○	○
	8, 9	○	○
	A ~ F	○	X
	[•] [EXP] Key	X	○
	[+/-] Key	X	○
	[▶] Key	○	○
Clear	[C] Key	○	○
Display	FLO, SCI, ENG	X	○
Decimal	FIX	X	○
Angle	DRG, D.R.G. ▶	X	○
Reverse	X ↔ Y	○	○

4. Calculation Procedure

Calculation Priority

The calculation procedure priority is automatically determined by the calculator. This means that algebraic expressions can be entered just as they are written. The calculation priority is as follows:

High Priority

- One-variable function
- Calculation in ( )
- x^y, $x^{1/y}$
- x , ÷
- + , ~

Example:

Calculation Order

$$5 \div 4^2 \times 7 + 3 \times 0.5^{\cos 60^\circ} =$$

Mode: DEG

Operation		Display
[5] [÷]	(	5.)
[4] [x^2]	(	16.).....①
[×]	(	0.3125).....②
[7] [+]	(	2.1875).....③
[3] [×]	(	3.)
[•] [5] [x^y]	(	0.5)
[6] [0] [cos]	(	0.5).....④
[=]	(	4.308820344).....⑦

Levels

During actual calculation, lower priority calculations are stored in the stack memory and then processed in turn. This stack memory can store up to 6 levels of calculations.

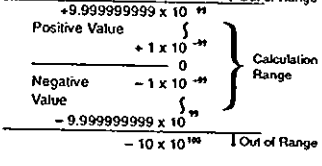
Example: $1 + 2 \times (\,(\,\mathrm{Sin}30^{\circ} + 6 \times (2 + 3 \times \frac{1}{5})\,)\,) =$

levels ① ② ③ ④ ⑤ ⑥

5. Calculation Range

Decimal Numbers

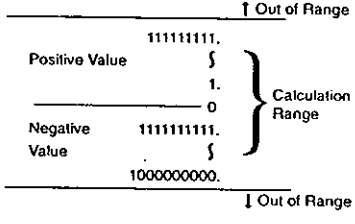
A maximum of 10 digits in the mantissa, or 10 digits in the mantissa with 2 digits in the exponent, can be entered or displayed. A negative value is indicated by adding a minus (–) sign. The calculation range is defined as follows:



- If the result of a calculation is out of the above range, an error occurs.
- For the calculation range during function calculation, refer to II-7. Calculation Range of Function.

Binary Numbers

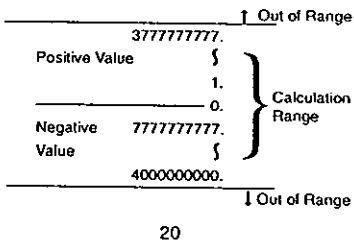
Binary integers of up to 10 digits can be entered and displayed. Negative binary values are expressed by their two's complement. The calculation range is defined as follows:



- If the result of a calculation is out of the above range, an error occurs.

Octal Number

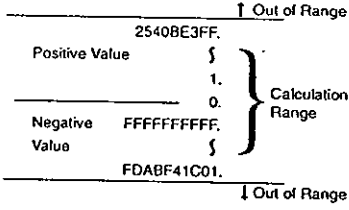
A maximum of 10 octal digits can be entered and displayed. Negative octal values are expressed by their two's complement. The calculation range is defined as follows:



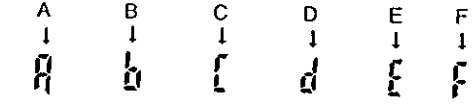
- If the result of a calculation is out of the above range, an error occurs.

Hexadecimal Numbers

A maximum of 10 hexadecimal digits can be entered and displayed. Negative hexadecimal values are expressed by their two's complement. The calculation range is defined as follows:



- If the result of a calculation is out of the above range, an error occurs.
- The hexadecimal numbers A to F are displayed as follows:



< Complement>

Inside computer calculations the complement is used to express the negative value without using + and – signs. And subtractions are performed by adding the complement.

Example: Enter 1 in the binary and subtract 1 for 3 times.

Key Operation	Display	Decimal
MODE 2		
1	(1.)	1
− 1 =	(0.)	0
=	(1 1 1 1 1 1 1 1 1 1.)	−1
=	(1 1 1 1 1 1 1 1 1 0.)	−2

6. How to Perform Statistical Calculations

Clearing All Registers Before Calculation

Press MODE 5 to set to the statistical mode. This will clear all function commands and all registers except the memory register.

As the results of statistical calculations are accumulated in the statistical calculation memory, statistical calculations can be performed again by exiting to another mode and then resetting the calculator for the statistical calculation mode.

Entering Statistical Data

Example 1: 2 DATA 3 DATA 4 DATA
Example 2: 1 2 5 log DATA 1 0 0 log DATA
Example 3: (1 2 3 M+ MR DATA)

Operations Not Available

Operations not available are:

- When the number of calculation nesting levels exceeds 3. (For levels information, refer to page 19.)

Correcting Statistical Data

Example 1: [1] [DATA] [2] [DATA] [4] [C/CE] [3] [DATA]

Example 2: [1] [DATA] [2] [DATA] [3] [DATA] [3] [SHIFT] [DEL]

Example 3: [1] [DATA] [2] [DATA] [3] [DATA] [1] [SHIFT] [DEL]

Example 4: [2] [•] [3] [DATA] [1] [•] [8] [DATA]
[2] [•] [2] [DATA] [5] [•] [4] [DATA]
[SHIFT] [$\bar{x}$]
[5] [•] [4] [SHIFT] [DEL] [SHIFT] [$\bar{x}$] (2.925)
(2.1)

Output of Statistical Calculation Results

Output	Operation	Equation
Mean	[SHIFT] [$\bar{x}$]	$x = \sum_{i=1}^{n} x_i / n$
Standard deviation of sample	[SHIFT] [σ^{n-1}]	$\sigma^{n-1} = \sqrt{\sum_{i=1}^{n} (x_i - \bar{x})^2 / (n-1)}$

Oulput	Operation	Equation
Standard deviation population parameter	SHIFT σ^n	$\sigma^n = \sqrt{\sum_{i=1}^{n} (x_i - \bar{x})^2 / n}$
Variance of sample	SHIFT σ^{n-1} X^2	$V^{n-1} = \sum_{i=1}^{n} (x_i - \bar{x})^2 / (n-1)$
Variance of population	SHIFT σ^n X^2	$V^n = \sum_{i=1}^{n} (x_i - \bar{x})^2 / n$
Sum	SHIFT Σx	Σx
Square sum	SHIFT Σx^2	Σx^2

- $\overset{n}{\square}$ key (number of data).

7. How to Perform Logical Calculations

Logical Calculations

It is also called Boolean algebra. The variables in the logical calculation have only two values of truth and false. The results are also given by either truth and false. Truth is expresed as "1" and false "0" , which corresponds to the binary expression. In the octal or hexadecimal calculations, the values are converted to the octal or hexadecimal.

Types of logical calculations and the truth table

("true" = 1, "false" = 0)

AND : Product of propositions
It produces 1 when all input values are 1.

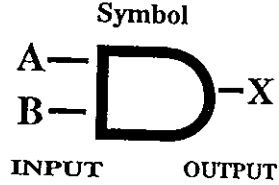
OR : Sum of propositions
It produces 1 when one or more input values are 1.

XOR : Exclusive sum of propositions
It produces 0 when all input values are either 1 or 0.
Other cases are same as OR.

XNOR : Opposite of XOR
Combination of XOR and NOT.

NOT : Negation
It produces the opposite values of the input.

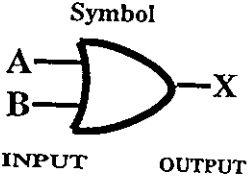
AND



Truth table

INPUT		OUTPUT
A	B	X
1	1	1
1	0	0
0	1	0
0	0	0

OR

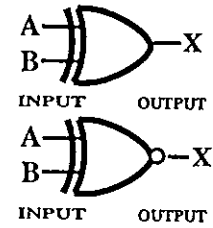


Truth table

INPUT		OUTPUT
A	B	X
1	1	1
1	0	1
0	1	1
0	0	0

XOR, XNOR

Symbol

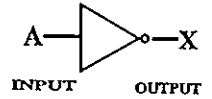


Truth table

INPUT		OUTPUT	
A	B	X OR	X NOR
1	1	0	1
1	0	1	1
0	1	1	0
0	0	0	1

NOT

Symbol



Truth table

INPUT A	OUTPUT X
1	0
0	1

8. Errors

The calculator will overflow in the following instances. Further calculations will not be possible as the calculator will be electronically locked:

1. When the calculation result is outside the following range:
   $x = 0, 1 \times 10^{-99} \leq |x| \leq 9.999999999 \times 10^{99}$
   x: Calculation result
2. When the contents of the memory are outside the following range:
   $x = 0, 1 \times 10^{-99} \leq |x| \leq 9.999999999 \times 10^{99}$
   x: Memory contents

(The data stored before the overflow error are retained.)

3. When numbers are entered outside the following range and a basic function key (+ , − , × , ÷) is depressed.
   $x=0,1 \times 10^{-99} \leq |x| \leq 9.999999999 \times 10^{99}$
4. When a ÷ 0 (division with 0 as a divisor) is performed.
5. When data exceeds the range of any function or statistical calculation.
6. In the statistical calculation mode, if σ^{n-1} is calculated with only one data.
   (1) To find x, σ^n and σ^{n-1} when n = 0.
   (2) When $n < 0$ or $n \geq 10^{10}$
7. When the number of operators stored in the calculator during parentheses and arithmetic calculation exceeds 6 levels.
8. When the number of calculation nesting levels exceeds 3 in statistical mode.
9. When more than 15 open parentheses are used at one time.

- The overflow display is : E 0.
  Clear the overflow error by depressing [C/CE].

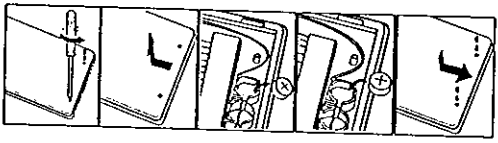
II. Power source

Battery

Alkali managanese battery (Type: LR44 x 1): 12,000 hours when used 2 hours a day. When the display dims, change the battery.

- Keep the battery out of children's reach. If the battery is swallowed, contact a doctor immediately.
- Do not try to recharge, disassemble or do anything to the battery that could cause a short circuit.
- Do not expose the battery to high temperatures or open flames.
- Please replace new battry to the same position.
- Loud external noise or static electricity may cause the display to malfunction or the contents of the memory to be lost or altered.
  Should this occur, press [C/ON] or remove battery and replace battery.

Battery Replacement



III Advice and precautions

- This calculator contains precision components such as LSI chips and should not be used in places subject to rapid variations in temperature, excessive humidity, dirt or dust, or exposed to direct sunlight.
- The liquid crystal display panel is made of glass and should not be subjected to excessive pressure.
- When cleaning the device, do not use a damp cloth or a volatile liquid such as paint thinner. Instead, use only a soft, dry cloth.
- Do not under any circumstances dismantle this device. If you believe that the calculator is not functioning properly, either bring or mail the device together with the guarantee to the service representative of a Canon business office.

iV. Specifications

Exponential Type.... MANTISSA, 10 DIGITS + exponent, 2 digits + sign, 2 digits

Floating Type ..... MANTISSA, 10 DIGITS + sign, 1 digit

Calculation Range:

Decimal	$\pm 1 \times 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$
Binary	111111111 to 0 to 1000000000
Octal	3777777777 to 0 to 4000000000
Hexadecimal	2540BE3FF to 0 to FDABF41C01.

POWER SOURCE: DC 1.5 V 0.008 mw

Alkaline battery (LR44) x 1: Approx. 12,000 hours when used 2 hours a day

Usable Temperature: 0° ~ 40° C (32° F ~ 104° F)

Size: 140 (L) x 76 (W) x 11 (H) mm
(5-33/64 " x 3" x 7/16 ")

Weight: 70 g (0.25 oz)

(Subject to change without notice.)

V. Calculation Examples / Exemples de calculs /

1. Decimal Calclulations / Calculs décimaux /

[Mode setting]

Calculation Mode : Decimal Mode (DEC)

MODE 1

Display Mode : Floating SHIFT F

Decimal Point : Reset SHIFT FIX .

[Réglage du mode]

Mode de calcul : Mode décimal (DEC)

MODE 1

Mode d'affichage : Virgule flottante SHIFT F

Spécification de virgule : Remettre à zéro SHIFT FIX .

Expression	Oeration (Display)
Expression	Opération (affichage)

Addition and Subtraction / Addition et soustraction

8 + 3 + 5.5 = 16.5	8 + 3 + 5 . 5 = (16.5)
4 – 7 – 3 = – 6	4 – 7 – 3 = (– 6.)

Multiplication and Division / Multiplikation und Division

3.6 x 1.7 = 6.12	3 • 6 X 1 • 7 =
	(6.12)
592 ÷ 4.8 =	5 9 2 ÷ 4 • 8 =
123.3333333	(123.3333333)

Mixed Calculations / Gemischte Rechnungen

3 + 5 x 7 = 38	3 + 5 X 7 = (38.)
6 x 9 + 3 ÷ 2 = 55.5	6 X 9 + 3 + 2 =
	(55.5)

Exponential Calculations / Exponentielle Rechnungen

$(321 \times 10^{-14}) \times (65 \times 10^{26})$	3 2 1 EXP 1 4 +/- X
$= 2.0865 \times 10^{18}$	6 5 EXP 2 8 =
	(2.0865^{18})

Fractional Calculations / Bruchrechnungen

$2\frac{3}{4} + 3\frac{4}{7} - \frac{5}{4} = 2\frac{83}{84}$	2 a b/c 3 + 3 a b/c 4 a b/c
	7 − 5 a b/c 4 =
	(2 ⌟ 83 ⌟ 84.)
$(\frac{3}{5} + 2\frac{3}{8}) \times \frac{2}{5} \div 2 - 1$	((... 3 a b/c 5 + 2 a b/c 3
$= -\frac{81}{200}$	a b/c 8 ...)) X 2 a b/c 5
	+ 2 − 1 = (− 81 ⌟ 200.)

Constant Calculations / Calculs à facteur constant

2 + 3 = 5	[2] [+] [3] [=]	(5.)
4 + 3 = 7	[4] [=]	(7.)
1 − 2 = − 1	[1] [−] [2] [=]	(− 1.)
2 − 2 = 0	[2] [=]	(0.)
3 x 2 = 6	[3] [X] [2] [=]	(6.)
4 x 2 = 8	[4] [=]	(8.)
6 ÷ 3 = 2	[6] [÷] [3] [=]	(2.)
9 ÷ 3 = 3	[9] [=]	(3.)

- In constant addition, the addend
  In constant subtraction, the subtrahend
  In constant multiplication, the multiplier
  In constant division, the divisor
  } is automatically specified as the constant.

- Dans l'addition d'une constante, la valeur ajoutée
  Dans la soustraction d'une constante, la valeur soustraite
  Dans la multiplication par une constante, le multiplicateur
  Dans la division par une constante, le diviseur
  } est automatiquement spécifié(e) en tant que constante.

Parentheses Calculations / Klammerrechung

3 + [(4 – 3.6 + 5) x 0.8 – 6] x 4.2	[3] [+] [((...] [((...] [4] [–] [3] [•] [6] [+] [5] [...)] [X] [•] [8] [–] [6] [...)] [X] [4] [•] [2] [=]
= – 4.056	(– 4.056.)

Percentage Calculations / Calculs de pourcentage

200 x 17% = 34	[2] [0] [0] [X] [1] [7] [SHIFT] [%] [=] (34.)
$\frac{456}{789}$ x 100 = 57.79467681%	[4] [5] [6] [÷] [7] [8] [9] [SHIFT] [%] [=] (57.79467681.)

Add-On Calculations / Calculs de majoration

200 + (200 x 20%) = 240	[2] [0] [0] [+] [2] [0] [SHIFT] [%] [=] (240.)

Discount Calculations / Calculs de rabais

200 – (200 x 20%) = 160	[2] [0] [0] [–] [2] [0] [SHIFT] [%] [=] (160.)

Constant Percentage Calculations /
Calculs de pourcentages avec facteur constant /

1200 x 12% = 144	1 2 0 0 X 1 2 SHIFT % = (144.)
1500 x 12% = 180	1 5 0 0 = (180.)
765/987 = 77.50759878%	7 6 5 ÷ 9 8 7 SHIFT % = (77.50759878)
654/987 = 66.26139818%	6 5 4 = (66.26139818)

Memory Calculations / Speicherrechung

	0 Min (0.)
20 x 30 = 600	2 0 X 3 0 = M+ (M 600.)
40 x 50 = 2000	4 0 X 5 0 = M+ (M 2000.)
+) 15 x 20 = 300	1 5 X 2 0 = M+ (M 300.)
2900	
−) 125 x 40 = −5000	MR (M 2900.)
−2100	1 2 5 X 4 0 = +/− M+ (M −5000.)
	MR (M −2100.)
	C/CE Min (0.)

Composition Ratio Calculations /
Calculs de répartition proportionnelle

A 125 (25 %)	1 2 5 + 1 8 5 +
B 185 (37 %)	1 9 0 = Min (M 500.)
C 190 (38 %)	1 2 5 ÷ MR SHIFT % = Min (M 25.)
(500) (100 %)	1 8 5 = M+ (M 37.)
	1 9 0 = M+ (M 38.)
	MR (M 100.)

2. Binary/Octal/Hexadecimal Calculations
Calculs en binaire/octal/hexadécimal

1) Binary Calculations / Calculs en binaire

Calculation Mode : Binary (BIN) MODE 2
Mode de calcul : Binaire (BIN) MODE 2

Addition and subtraction / Addition et soustraction

10101011 + 1100 +	1 0 1 0 1 0 1 1
1110 = 11000101	+ 1 1 0 0 + 1 1
	1 0 = (11000101.)
11100011 – 10101100	1 1 1 0 0 0 1 1
	– 1 0 1 0 1 1 0
= 110111	0 = (110111.)

Multiplication and Division /Multiplikation und Division

11 x 1001 = 11011	[1][1][X][1][0][0][1][=] (11011.)
1101111 ÷ 1010 ≒ 1011	[1][1][0][1][1][1][1][÷] [1][0][1][0][=] (1011.)

Mixed Calculations / Gemischte Rechnungen

(101010 + 1100) x 11 ÷ 1111 = 1010	[(–][1][0][1][0][1][0][+] [1][1][0][0][–)][X][1][1] [÷][1][1][1][1][=] (1010.)

2) Octal Calculations / Calculs en octal

Calculation Mode : Octal (OCT) [MODE] [3 OCT]

Mode de calcul : Octal (OCT) [MODE] [3 OCT]

Addition and Subtraction / Addition et soustraction

654 + 321 = 1175	[6][5][4][+][3][2][1][=] (1175.)
741 – 357 = 362	[7][4][1][–][3][5][7][=] (362.)

Multiplication and Division / Multiplikation und Division /

56 x 23 = 1552	5 6 X 2 3 = (1552.)
621 ÷ 12 = 50	6 2 1 ÷ 1 2 = (50.)

Mixed Calculations / Gemischte Rechnungen

52 + 63 x 14 = 1216	5 2 + 6 3 X 1 4 = (1216.)

3) Hexadecimal Calculations / Calculs en hexadécimal

Calculation Mode : Hexadecimal (HEX) MODE 4 (HEX)

Mode de calcul : Hexadécimal (HEX) MODE 4 (HEX)

Addition and Subtraction / Addition et soustraction

AAA + BB + C = B71	A A A + B B + C = (b71.)
DEF – EFE = FFFFFFFEF1	D E F − E F E = (FFFFFFFEF1.)

Multiplication and Division / Multiplikation und Division

FEDC X A9 = A83F3C	F E D C X A 9 = (A83F3C.)
CA11 ÷ DF = E7	C A 1 1 ÷ D F = (E7.)

Mixed Calculations / Gemischte Rechnungen

(AB + C) X D ÷ F ≒ 9E	[(-] [A] [B] [+] [C] [-)] [X] [D] [÷] [F] [=] (9E.)

- Calculations combining binary, octal, decimal and hexadecimal numbers can also be performed.
- Des calculs combinant des nombres en binaire, octal, décimal et hexadécimal peuvent aussi être réalisés.

3. Basic Function Calculations / Calculs de fonctions de base´

Trigonometric Functions / Fonctions trigonométriques

sin53° = 0.79863551	[DEG] [5] [3] [sin] (0.79863551)
tan65^{GRAD} = 1.631851687	[GRAD] [6] [5] [tan] (1.631851687)
sin $\frac{\pi}{3}^{RAD}$ = 0.866025403	[RAD] [SHIFT] [π] [÷] [3] [=] [sin] (0.866025403)

Inverse Trigonometric Functions
Fonctions trigonométriques inverses

sin^{-1}0.3 = 17.45760312°	[DEG] [•] [3] [SHIFT] [sin^{-1}] (17.45760312)
cos^{-1}0.8 = 36.86989765°	[DEG] [•] [8] [SHIFT] [cos^{-1}] (36.86989765)
tan^{-1} 1.5 = 56.30993247	[DEG] [1] [•] [5] [SHIFT] [tan^{-1}] (56.30993247)
sin^{-1}1 = 1.570796327 (rad)	[RAD] [1] [SHIFT] [sin^{-1}] (1.570796327)

Logarithmic Functions / Logarithmische Funktionen

log123 = 2.089905111	1 2 3 log	(2.089905111)
ln123 = 4.812184355	1 2 3 ln	(4.812184355)

Exponential Functions / Exponentielle Funktionen /

e^{22} = 3584912846.	2 2 SHIFT e^x	(3584912846.)
$10^{2.3}$ = 199.5262315	2 • 3 SHIFT 10^x	(199.5262315)

Square Calculations / Calculs quadratique

1.25^2 = 1.5625	1 • 2 5 x^2	(1.5625)

Power Calculations / Potenzierung

5.43^3 = 160.103007	5 • 4 3 x^y 3 =	(160.103007)
$2^{3.4}$ = 10.55606329	2 x^y 3 • 4 =	(10.55606329)

Constant Power Calculations / Calculs à puissance constante

$2^{2.34}$ = 5.063026376	2 x^y 2 • 3 4 =	(5.063026376)
$3^{2.34}$ = 13.07566351	3 =	(13.07566351)
$4^{2.34}$ = 25.63423608	4 =	(25.63423608)

Extraction of Square Root / Extraction de la racine carrée

$\sqrt{(5+6) \times 7} =$ 8.774964387	[(...] [5] [+] [6] [...)] [X] [7] [=] SHIFT √ (8.774964387)

Multiple Root / Multiple Wurzel

$\sqrt[5.3]{100} = 2.384286779$	[1] [0] [0] SHIFT $x^{1/y}$ [5] [.] [3] [=] (2.384286779)

Extraction of Cubic Root / Ziehen einer dritten Wurzel

$\sqrt[3]{123} = 4.973189833$	[1] [2] [3] SHIFT ∛ (4.973189833)

Reciprocal Calculations / Reziprokrechnung

$\frac{1}{2 \times 3 + 4} = 0.1$	[2] [X] [3] [+] [4] [=] [1/X] (0.1)

Factorial Calculations/ Fakultät

$(4 \times 2 - 3)! = 120$	[4] [X] [2] [−] [3] [=] SHIFT $x^!$ (120)

Trigonometric Calculations / Trigonometrisch Rechnungen

$\text{cosec } x = \frac{1}{\sin x}$ $\text{cosec}45^\circ = 1.414213562$	[DEG] [4] [5] [sin] [1/x] (1.414213562)

Hyperbolic Functions / Fonctions hyperboliques

cosh34 = $2.917308713 \times 10^{14}$	[3] [4] [HYP] [cos] (2.917308713^{14})
tanh1.23 = 0.842579325	[1] [.] [2] [3] [HYP] [tan] (0.842579325)

Inverse Hyperbolic Functions
Fonctions hyperboliques inverses

$\sinh^{-1} 1.5 \times 10^{25} =$ 58.66323961	[1] [.] [5] [EXP] [2] [5] [SHIFT] [HYP] [sin] (58.66323961)

Degree → Radian Conversion
Conversion degrés → radians

$60^\circ = 1.04719775^{RAD}$	[6] [0] [SHIFT] [DRG▸] (1.047197551)

Radian → Gradient conversion
Conversion radians → grades

$2^{RAD} = 127.323945^{GRAD}$	[RAD] [2] [SHIFT] [DRG▸] (127.3239545)

Gradient → Degree Conversion
Conversion grades → degrés

$120^{GRAD} = 108^{\circ}$	[GRAD] [1] [2] [0] [SHIFT] [DRG▸] (108.)

Logarithmic Mean /
Logarithmisches Mittel

$\bar{L} = \frac{4-8}{\ln 4 - \ln 8}$	[((–] [4] [–] [8] [...)] [÷] [((–] [4]
$= 5.770780164$	[ln] [–] [8] [ln] [...)] [=] (5.770780164)

Geometric Mean / Geometrisches Mittel

$\bar{G} =$	[1] [.] [2] [3] [X] [1] [.] [4]
$\sqrt[4]{1.23 \times 1.48 \times 1.96 \times 2.2}$	[8] [X] [1] [.] [9] [6] [X] [2]
$= 1.673830182$	[.] [2] [=] [SHIFT] [$x^{1/y}$] [4] [=]
	(1.673830182)

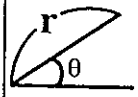
Premutation / Permutationen

${}_nP_r = \frac{n!}{(n-r)!}$	[5] [SHIFT] [X!] [÷] [((–] [5] [–] [3]
${}_5P_3 = \frac{5!}{(5-3)!} = 60$	[...)] [SHIFT] [X!] [=] (60.)

Combinations / Kombinationen

${}_nC_r = \frac{n!}{r!(n-r)!}$	[5] [SHIFT] [X!] [÷] [((–] [3] [SHIFT] [X!]
${}_5C_3 = \frac{5!}{3!(5-3)!}$	[X] [((–] [5] [–] [3] [...)] [SHIFT] [X!]
$= 10$	[...)] [=] (10.)

Polar Conversion / Polarkoordinaten conversion polaire



$(1,\sqrt{3})$

$(r = 2)$

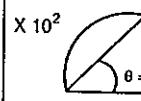
$\theta = 60^\circ$

[DEG] [1] [SHIFT] [X↔Y] [3] [SHIFT] [√‾]

[R→P] (2.)

[SHIFT] [X↔Y] (60.)

Rectangular Conversion / Conversion rectangulaire



x = 89.66314117

y = 84.19929403

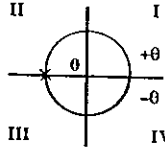
[DEG] [1] [•] [2] [3] [EXP] [2]

[SHIFT] [X↔Y] [4] [3] [•] [2]

[SHIFT] [R→P] (89.66314117)

[SHIFT] [X↔Y] (84.19929403)

* In polar conversion q in the third and fourth quadrant are as shown in the diagram.
* Dans la conversion polaire, du troisième et du quatrième quadrant se présente de la manière indiquée dans le diagramme.



Degrees-Minutes-Seconds → Decimal Degrees
Degrés-Minutes-Secondes → Degrés décimaux

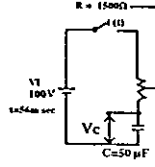
123°45'06" → 123.7516667°	[1] [2] [3] [•] [4] [5] [0] [6] [a→] (123.7516667)

Decimal Degrees → Minutes-seconds
Degrés décimaux → Degrés-Minutes-Secondes

2.3456° → 2°20'44.16"	[2] [•] [3] [4] [5] [6] [SHIFT] [a→] (2.° 20'44"16)

4. Applied Calculations / Calculs appliqués

[Electricity]
Electrical Circuit Porblem
Obtain the voltage Vc at both terminals of the condenser at t=56 m sec.



[Electricité]
Circuit électrique
Déterminer la tension Vc aux deux bornes du condensateur pour t=56 ms.

$$Vc = Vi\,(1 - e^{-\frac{1}{RC}})$$

$$= 100 \times (1 - e^{-\frac{56 \times 10^{-3}}{150 \times 50 \times 10^{-6}}}) = 52.6052649$$

[1] [0] [0] [X] [(–] [1] [–] [(–] [1] [5] [0] [0] [X] [5] [0] [EXP] [6] [+/–] [+] [5] [6] [EXP] [3] [+/–] [–)] [1/X] [+/–] [SHIFT] [e^x] [–)] [=] (52.60562649)

[Algebra]
The Root of a Quadratic Equation (Only for problems having a real root)
[Algèbre]
Racine d'une équation du 2 ème degré (uniquement pour une équation ayant une racine réelle)

$4x^2 + 9x + 2 = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-9 \pm \sqrt{9^2 - 4 \times 4 \times 2}}{2 \times 4}$$

$$x = \begin{cases} -0.25 \\ -2 \end{cases}$$

9 x^2 − 4 × 4 × 2 = M+ (M 49)

(9 +/− + MR SHIFT) + 2 + 4 = (M −0.25)

(9 +/− − MR SHIFT) + 2 + 4 = (M −2)

[Calculation of time]
Departing at 2 hours 9 minute and 56 seconds (2.095600) the destination was reached at 4 hours 18 minutes and 23 seconds (4.182300). What is the travel time?
[Calcul du temps]
Le départ ayant eu lieu à 2 heures 9 minutes et 56 (2,095600) secondes et la destinationn ayant été atteinte à 4 heures 18 minutes et 23 secondes (4,182300). quelle a été la durée au voyage?
ariva a destinazione alle ore 4, 18 minuti e 23 secondi (4.182300). Quale sarà la durata del viaggio?

4 . 1 8 2 3 a b/c − 2 . 0 9 5 6

a b/c = SHIFT a b/c

2 hours 8 minutes 27 seconds (2.°08'27")

2 heures 8 minutes 27 secondes

[Calaulation of time]

The part-time work period is as follows. What will be the total time?

- 1st day: 5 hours 46 minutes
- 2nd day: 4 hours 39 minutes
- 3rd day: 3 hours 55 minutes

[Calcul du temps]

Si le temps de travail quotidien est comme suit, quel est le temps total de travail?

- 1 er jour: 5 heures 46 minutes
- 2 ème jour: 4 heures 39 minutes
- 3 ème jour: 3 heures 55 minutes

[5] [•] [4] [6] [a⋯] [÷] [4] [•] [3] [9] [a⋯] [+] [3] [•]
[5] [5] [a⋯] [=] [SHIFT] [a⋯]

14 hours 20 minutes (14.°20'00")

14 heures 20 minutes

5. Calcoli statistici / Calculs statistiques

Calculate the number (n), mean value ($\bar{x}$), standard deviation sample (σ^{n-1}), variance (V^{n-1}), standard deviation population parameter (σ^{n}), variance of population (V^{n}), sum (Σx). and square sum (Σx^2), from the data shown.

Calculer le nombre (n), la valeur moyenne ($\bar{x}$), l'ecart-type de l'échantillon (σ^{n-1}), la variance (V^{n-1}), le paramètre d'écart-type de la population (σ^{n}), la variance de population (V^{n}) la somme (Σx) et la somme des carrés (Σx^2) à partir des données indiquées.

Statistic

Statistical Calculations (average, standard deviation) You bought 20 large sized pizza for the party. The large is supposed to be 30 cm diameter. Their sizes were, however, varied as shown below.

Statistiques

Calculs statistiques (moyenne, écart-type)

vous avez acheté 20 grandes pizzas pour une réception. La grande pizza est censée présenter un diamètre de 30 cm. Néanmoins, la taille des pizzas achetées varie de la manière indiquée dans le tableau ci-dessous.

Diameter Diamètre	Midpoint Diamètre moyen	Frequency Fréquence
27.6 ~ 28.5	28	2
28.6 ~ 29.5	29	4
29.6 ~ 30.5	30	5
30.6 ~ 31.5	31	6
31.6 ~ 32.5	32	3
		20

Key operation Opèration	Display Affichage	Explanation Explication
MODE 5	0.	Statistic mode
SHIFT FIX 4	0.0000	Mode statistique

2 8 X 2 DATA 2 9 X 4 DATA 3 0 X 5 DATA 3 1 X 6 DATA 3 2 X 3 DATA	2.0000 6.0000 11.0000 17.0000 20.0000	Gives the sum of frequency Le tableau ci-dessus donne la somme des fèrquences
SHIFT n	20.0000	Total number of data Nombre total de données
SHIFT $\bar{x}$	30.2000	Mean Moyenne
SHIFT Σx	604.0000	Sum of the values Somme des valeurs
SHIFT Σx^2	18270.000	The square sum of value La somme des carrés
SHIFT σ^{n-1}	1.2397	Standard deviation of sample Ecart-type d'échantillon
SHIFT σ^n	1.2083	Standard deviation of population Ecart-type de la population

6. Logical Calculations / Calcul logique

Example: Calculate AND and OR with (1100) and (1010) in the binary.
Exemple: Calculer AND et OR avec (1100) et 91010) en binaire.

Key Operation Opération de touche	Display affichage
MODE 2 (BIN)	
1100 AND 1010 =	(1000.)
1100 OR 1010 =	(1110.)

Logical Calculations in binary/octal/hexadecimal
Calculs logiques en binaire/octal/hexadécimal

Mode Mode	Operation Opération	Display Affichage
Binary Binaire	MODE 2 (BIN)	
	1 0 1 0 1 0 AND	
	1 1 1 0 0 0 =	101000.
	1 0 1 0 1 0 OR	
	1 1 1 0 0 0 =	111010.
	1 0 1 0 1 0 XOR	
	1 1 1 0 0 0 =	10010.
	1 0 1 0 1 0 XNOR	
	1 1 1 0 0 0 =	1111101101.
	1 0 1 0 1 0 NOT	1111010101.

Octal Octal	MODE 3 (OCT) 1 2 3 4 5 6 AND 7 6 5 4 3 2 =	121412.
	1 2 3 4 5 6 OR 7 6 5 4 3 2 =	767476.
	1 2 3 4 5 6 XOR 7 6 5 4 3 2 =	646064.
	1 2 3 4 5 6 XNOR 7 6 5 4 3 2 =	7777131713.
	1 2 3 4 5 6 NOT	7777654321.
Hexadecimal Hexdécimal	MODE 4 (HEX) 7 8 9 A B C AND 1 4 7 2 5 8 =	101218.
	7 8 9 A B C OR 1 4 7 2 5 8 =	7CFAFC.
	7 8 9 A B C XOR 1 4 7 2 5 8 =	6CE8E4.
	7 8 9 A B C XNOR 1 4 7 2 5 8 =	FFFF93171b.
	7 8 9 A B C NOT	FFFF876543.

7. Calculation Range of Functions
Plage de calculs des fonctions

Function Fonction	Calculation Range Plage de calculs
sin x	DEG $x = 0,5.729577951 \times 10^{-10} < \lvert x \rvert \leq 4.499999999 \times 10^{10}$ RAD $0 \leq \lvert x \rvert \leq 785398163.3$ GRAD $x = 0,6.366197723 \times 10^{-10} < \lvert x \rvert \leq 4.999999999 \times 10^{10}$

cos x	DEG $0 \leq \|x\| \leq 4.500000008 \times 10^{10}$
	RAD $0 \leq \|x\| \leq 785398164.9$
	GRAD $0 \leq \|x\| \leq 5.000000009 \times 10^{10}$
tan x	DEG $x = 0, 5.729577951 \times 10^{-09} < \|x\| \leq 4.499999999 \times 10^{10}$, $\|x\| \neq 90^\circ + 180^\circ \times n$
	RAD $0 \leq \|x\| \leq 785398163.3$ $x \neq 90^\circ + 180^\circ \times n$
	GRAD $x = 0, 6.366197723 \times 10^{-09} < \|x\| \leq 4.999999999 \times 10^{10}$, $\|x\| \neq 90^\circ + 180^\circ \times n$

Function Fonction	Input Range Plage d'entrée
$\sin^{-1} x$	DEG $x = 0, 1.570796326 \times 10^{-09} < \|x\| \leq 1$
	RAD $0 \leq \|x\| \leq 1$
	GRAD $x = 0, 1.570796326 \times 10^{-09} < \|x\| \leq 1$
$\cos^{-1} x$	DEG $0 \leq \|x\| < 1$
	RAD $0 \leq \|x\| < 1$
	GRAD $0 \leq \|x\| < 1$
$\tan^{-1} x$	DEG $x = 0, 1.570796326 \times 10^{-09} < \|x\| \leq 9.999999999 \times 10^{99}$
	RAD $0 \leq x \leq 9.999999999 \times 10$
	GRAD $x = 0, 1.570796326 \times 10^{-09} < \|x\| \leq 9.999999999 \times 10^{99}$
ln x	$0 < x$
Log x	$0 < x$
e^x	$-227.9559243 < x \leq 230.2585092$
10^x	$-99.00000001 < x \leq 99.99999999$
n !	$0 \leq x \leq 69$ ($x \neq$ integer)
1/x	$1 \times 10^{-99} \leq \|x\| \leq 1 \times 10^{100}$
x^2	$x = 0, 3.162277660 \times 10^{-50} < \|x\| < 9.999999999 \times 10^{49}$
$\sqrt{x}$	$0 \leq x \leq 9.999999999 \times 10^{99}$
$\sqrt[3]{x}$	$0 \leq \|x\| \leq 9.999999999 \times 10^{99}$
x^y	$x > 0$, $-277.9559243 \leq y \cdot \ln \|x\| \leq 230.2585092$
$x^{1/y}$	$x > 0$, $-277.9559243 \leq (\ln \|x\|) \div y \leq 230.2585092$

Canon

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