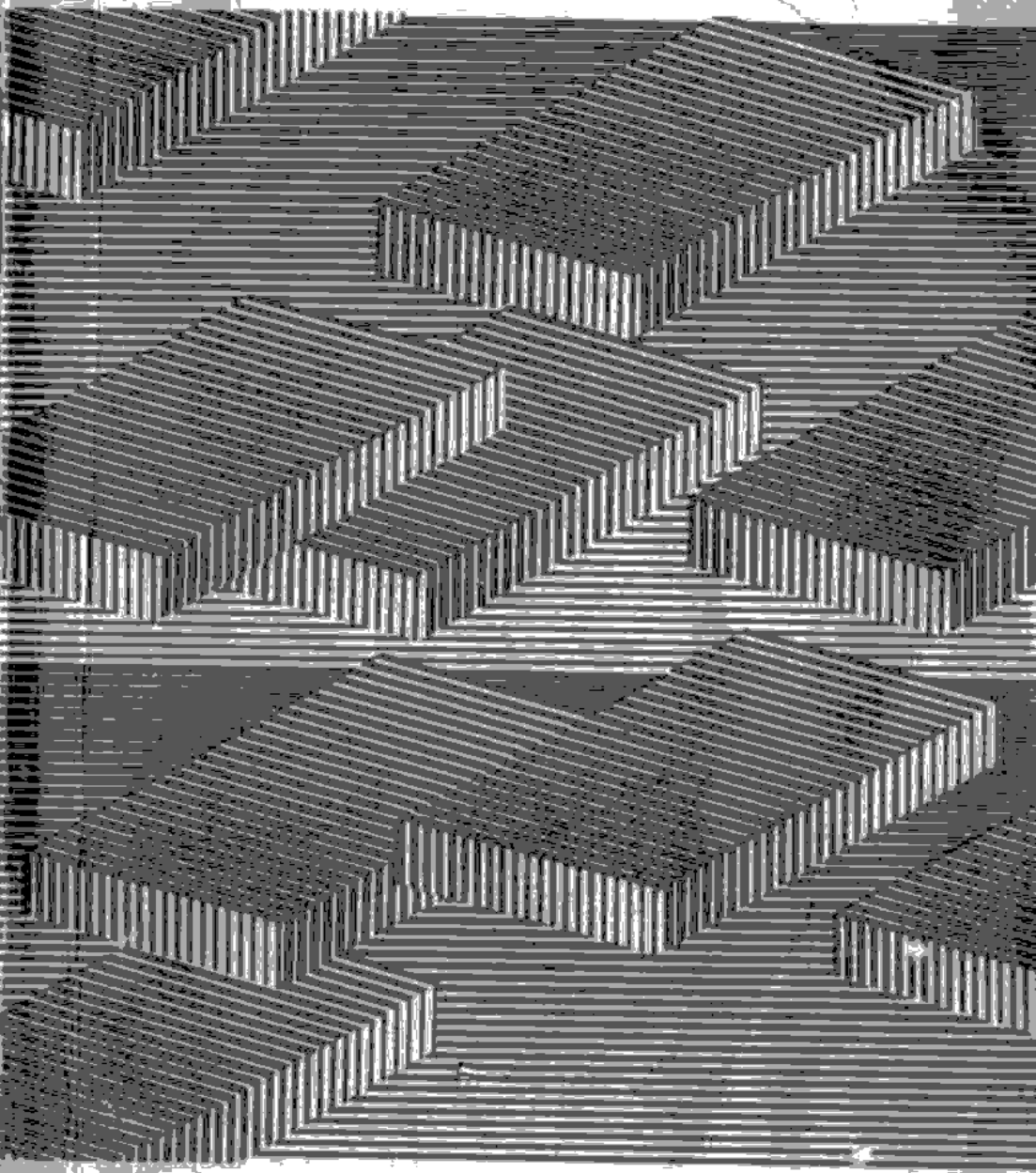
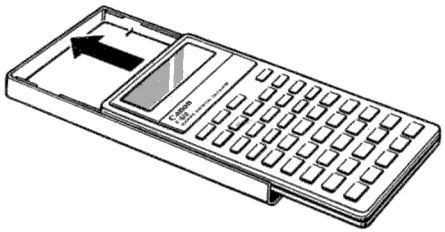
Canon

F-612



Instructions
Bedienungsanleitung
Mode d'emploi
Instrucciones
Istruzioni



E During use, reverse the enclosed Hard Cover as shown and attach it to the calculator. The keyboard will then be fixed in position, making the keys easier to operate.

D Bei Gebrauch den Deckel wie gezeigt umdrehen und am Rechner anbringen. Die Tastatur ist dann festgestellt, was die Tastenbetätigung erleichtert.

F Retourner le couvercle comme illustré et le fixer à la calculette. Le clavier est alors fixé en position et plus facile à utiliser.

Es Durante la utilización, invierta la Cubierta Dura tal como se indica y fíjela a la calculadora. Entonces el teclado quedará fijo en posición, haciendo más facil la operación de las teclas.

I Durante l'uso, rovesciare il coperchio rigido in dotazione come mostrato nell'illustrazione e applicarlo al calcolatore. La tastiera rimane così bloccata in posizione, facilitando l'uso dei tasti.

ENGLISH

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E Note on keymarks

In these instructions keys which have 2 or 3 functions are indicated emphasizing the function being used at that time.

D Anmerkung zu den Tastenbezeichnungen

In den vorliegenden Anweisungen werden Tasten, die über 2 oder 3 Funktionen verfügen, immer mit der gerade verwendeten Funktion bezeichnet.

F Remarque sur les indications des touches:

Dans les présentes instructions, les touches possédant 2 ou 3 fonctions sont indiquées en mettant en évidence la fonction utilisée à ce moment-là.

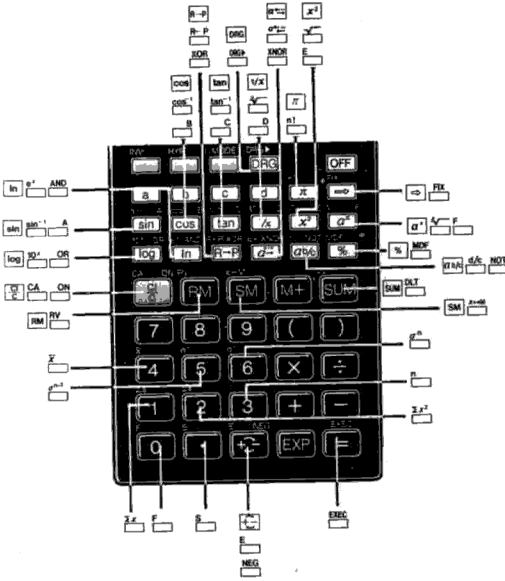
Es Nota sobre las marcas de les teclas

En estes instrucciones, se indican las teclas con 2 ó 3 funciones dando énfasis a la función que se está utilizando en ese momento.

I Nota sulla tastiera

In queste istruzioni, i tasti che svolgono 2 o 3 funzioni vengono indicati sottolineando la funzione usata di volta in volta.

E Keys **Es Teclas**
D Tasten **I Tasti**
F Touches



I. How to Use the Calculator

1. Keys

Power ON, OFF and Clear Keys

[ON] **Power ON Key:** Turns the calculator on or restarts calculation when the display goes out automatically by Automatic 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.

[CA] ***Clear All Key:** For clearing all the entries and results, including memory contents. Depress this key before starting calculation.

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

- When the [C/CE] key is pressed after the [+], [−], [×], [÷], or [=] key, or when it is pressed twice successively, it clears the contents of all registers except the memory.
- Register and Memory Cleared by Each Key Operation

Display Register	[CA] key	Clear key ([C/CE])
Calculation Register		
Stack Memory		
Statistical Calculation Memory		After changing mode, clear data.
Independent Memory	[C/CE] [SM]	

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.

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

Example:

Value	Operation	Display
12345	[1] [2] [4] incorrect entry	124.
	[⇨]	12.
	[3] [4] [5]	12345.

Mode Selection Keys

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

Example: $\sin^{-1} 0.5 \rightarrow$ [•] [5] [INV] [sin⁻¹]

[MODE] **Calculation Mode Key:** Specifies the calculation mode. Depressing the [1] ~ [7] keys after this key sets the calculation mode as specified below.

Key Operation	Mode	Display Indicator
[MODE] [1]	Decimal Calculation Mode	
[MODE] [2]	Binary Calculation Mode	BIN
[MODE] [3]	Hexadecimal Calculation Mode	HEX
[MODE] [4]	Statistical Calculation Mode	STAT1
[MODE] [5]	2VLE Mode	ax+by=d
[MODE] [6]	3VLE Mode	ax+by +cz=d
[MODE] [7]	QE Mode	ax^2+bx +c=o

[F] [S] [E] ***Display Mode Key:** Changes the display mode. The display mode rotates each time this key is depressed as follows.

[F] .....Floating Mode
[S] .....Scientific Exponential Mode
[E] .....Engineering Exponential Mode

Example:

Key Operation	Display	Explanation
([INV] [F])		(Floating Mode)
[1] [2] [3] [4] [5]		Floating Mode
[6] [7] [8] [×]		
[1] [0] [=]	123456780.	
[INV] [S]	1.2345678^{08}	Scientific Exponential Mode
[INV] [E]	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 the [0] ~ [9] or [•] keys after this key specifies the number of decimal digits as follows:

INV FIX [0] .....0 decimal digits
INV FIX [1] .....1 decimal digit
•
•
INV FIX [9] .....9 decimal digits
INV FIX [•] .....Resets the decimal specification

Example:

Key Operation	Display	Explanation
INV FIX [3]	0.000	3 digits decimal
[1] [2] [3] [4] [5]		
[6] [7] [8] [9] [×]	123456789.0	
[•] [0] [0] [1] [=]	123456.789	
INV FIX [0]	123457. *1	0 digit decimal
INV 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.

MDF ***MDF Key:** Changes the value in the calculation register to match the attered played value, as shown in following calculation.

Example: Display the inverse of 7 in two decimal digits and then alter the value in the register to match the modified displayed value.

Operation	Display	Explanation
[7] [1/x]	0.142857142	reciprocal 7
INV FIX [2]	0.14	2 digits decimal
INV MDF	0.14	
INV FIX [9]	0.140000000	9 digits decimal

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 the INV key.

- 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 Parentheses Keys: For performing parentheses calculations where numbers and instructions to be stored in the register are within 6 levels.

Example:

$2\times(3+4)=14$	2 × (3 + 4)
	= (14.)
$1+[(4-3.6+5)$	1 + [(4 − 3 . 6
$\times 0.8-6]\times 4.2$	+ 5) × . 8 − 6]
$=-6.056$	× 4 . 2 = (−6.056)

- However, up to 15 consecutive open parentheses can be used at one time.
  Example: $5\times\underbrace{(((\ldots((4+2)\times 3)+8\ldots}_{\text{Up to 15 parentheses}}$
- The (and) keys are always used together. If either (key is pressed alone during an operation, the intended result cannot be obtained.
- The (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.

***Reverse Key:** Reverses the operand and the operator in multiplication and division sequences.

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

1 2 3 × 4 5 6 ÷ 7 8 9 INV RV =

(0.01406718)

<Fractional Calculations>

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

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 $1\frac{2}{5}$ 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 digits for the improper fractions are up to 6 digits for the numerator and 3 digits for the denominator, totalling 9 digits. The mixed fractions are up to 3 digits for each integer, numerator and denominator but the total must be up to 8 digits.

- [a b/c] key can convert the resuts 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 ⅔ + 4 ⅚ 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.
[INV] [d/c] [=]	3 _ 1 ⌟ 3.
[INV] [d/c]	10 ⌟ 3.

Memory Keys

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

[RM] **Recall Memory Key:** For recalling the independent memory contents.

[SM] **Store Memory Key:** For storing the displayed numbers in the independent memory. The former contents will be erased.

[x⇔M] ***Display/Independent Memory Change 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+]	123.	123	Stores 123
4 5 6 [M+]	456.	579	Adds 456
[RM]	579.	579	Read from memory
7 8 9 [SM]	789.	789	Stores 789
3 6 9	369	789	
[INV] [x⇔M]	789.	369	Display↔ Memory
[CE/C]	0.	369	Clears display
[SM]	0.	0	Clears memory

Binary/Hexadecimal Number Keys

[0] ~ [1] Binary Number Entry Keys

- The [2] ~ [9] keys are ignored in the binary mode.

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

Example:

Value	Operation	Display
AB7C	[MODE] [3] [A] [B] [7] [C]	(HEX) Ab7C.

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

Example 1 **Binary mode** [MODE] [2]

Key operation: [1] [0] [1] [0] [1] [0] [NEG]

Display: (1111010110.)

Example 2 **Hexadecimal mode** [MODE] [3]

Key operation: [7] [8] [9] [A] [B] [C] [NEG]

Display: (FFFF876544.)

Function Keys

For details of function calculations, refer to II-3 Function Calculations.

[HYP] **Hyperbolic key**

[sin] **Sine Key**

[cos] **Cosine Key**

[tan] **Tangent Key**

[ln] **Natural Logarithm Key**

[e^x] ***Exponential Function Key**

[x^2] **Square Key**

[1/x] **Reciprocal Key**

[°'"] **Sexagesimal → Decimal Conversion Key**

[R→P] **Rectangular → Polar Coordinates Conversion Key**

[a^x] **Raising to Power Key**

[π] **Pi Key**

[$\sin^{-1}$] ***Arc Sine Key**

[$\cos^{-1}$] ***Arc Cosine Key**

[$\tan^{-1}$] ***Arc Tangent Key**

[log] **Common Logarithm Key**

[10^x] ***Common Exponential Key**

[$\sqrt{}$] ***Square Root Key**

[$\sqrt[3]{}$] ***Cubic Root Key**

[°'"] ***Decimal → Sexagecimal Conversion Key**

[R→P] ***Polar → Rectangular Coordinates Conversion Key**

[$\sqrt[x]{}$] ***Multiple Root Key**

[n!] ***Factorial Key**

Statistical Keys

SUM **Variable Entry (SUM) key**

DLT ***Variable Correction (DLT) Key**

Σx ***Sum Key**

Σx^2 ***Square sum Key**

n ***Number of data Key**

$\bar{x}$ ***Mean Key**

σ^{n-1} ***Standard deviation of sample Key**

σ^n ***Standard deviation population parameter Key**

Logical Calculation Keys

AND ***AND Key**

OR ***OR Key**

XOR ***XOR Key**

XNOR ***XNOR Key**

NOT ***NOT Key**

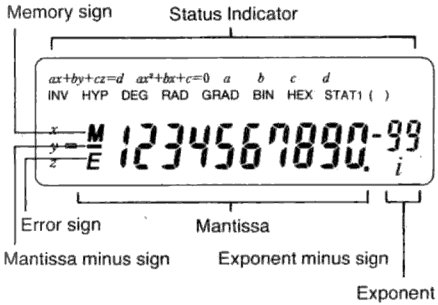
Use for the logical calculation in the binary/ hexadecimal modes.

Equations Keys

a b c d **Coefficients Keys**

EXEC **EXEC Key**

2. Display Indicators



INV	:	Inverse
HYP	:	Hyperbolic
DEG	:	Degree Mode
RAD	:	Radian Mode
GRAD	:	Gradient Mode
BIN	:	Binary Mode
HEX	:	Hexadecimal Mode
STAT	:	Statistic Mode
( )	:	Calculation in Parentheses
ax+by=d	:	2VLE Mode
ax+by+cz=d	:	3VLE Mode
$ax^2+bx+c=0$	:	QE Mode
a, b, c, d	:	Coefficient
x, y, z	:	Solution

4. Calculation Procedure

Calculation Priority

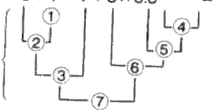
The calculation procedure priority is automatically determined by the calculator. This means that algebraic expressions can be entered just as they are written. The calculation priority is as follows:

High Priority ↑

- One-variable function
- Calculation in ( )
- a^x, $\sqrt[x]{\ }$
- ×, ÷
- +, −

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

Calculation Order



Mode: DEG

Operation		Display
5 ÷	(	5.)
4 x^2	(	16.)·····①
×	(	0.3125)·····②
7 +	(	2.1875)·····③
3 ×	(	3.)
• 5 a^x	(	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: $1+2\times((\sin 30^\circ+6\times(2+3\times\frac{1}{5}))=$

levels ① ② ③ ④ ⑤ ⑥

5. Calculation Range

Decimal Numbers

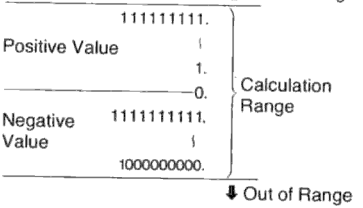
A maximum of 10 digits in the mantissa, or 10 digits in the mantissa with 2 digits in the exponent, can be entered or displayed. A negative value is indicated by adding a minus (−) sign. The calculation range is defined as follows:

$+1\times10^{100}$	⬆ Out of Range
$+9.999999999\times10^{99}$	Calculation Range
Positive Value	
$+1\times10^{-99}$	
0	
Negative Value	
-1×10^{-99}	
$-9.999999999\times10^{99}$	
-10×10^{100}	⬇ Out of Range

- 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-8, Calculation Range of Functions.

Binary Numbers

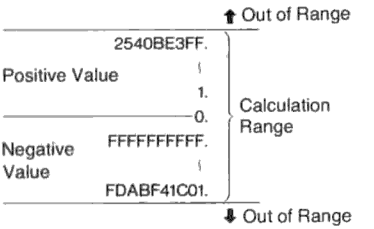
Binary integers of up to 10 digits can be entered and displayed.
Negative binary values are expressed by their two's complement.
The calculation range is defined as follows:



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

Hexadecimal Numbers

A maximum of 10 hexadecimal digits can be entered and displayed. Negative hexadecimal values are expressed by their two's compliment. 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:

A B C D E F

<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 the [MODE] and [4] keys 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] [SUM] [3] [SUM] [4] [SUM]

Example 2: [1] [2] [5] [log] [SUM] [1] [0] [0] [log] [SUM]

Example 3: ([1] [2] [3] [M+]) [RM] [SUM]

Operations Not Available

Operations not available are:

- When the number of calculation nesting levels exceeds 3.

Correcting Statistical Data

Example 1: [1] [SUM] [2] [SUM] [4] [CA/C] [3] [SUM]

Example 2: [1] [SUM] [2] [SUM] [3] [SUM] [3] [INV] [DLT]

Example 3: [1] [SUM] [2] [SUM] [3] [SUM] [1] [INV] [DLT]

Example 4: [2] [▪] [3] [SUM] [1] [▪] [8] [SUM]
[2] [▪] [2] [SUM] [5] [▪] [4] [SUM]
[INV] [$\bar{x}$]
[5] [▪] [4] [INV] [DLT] [INV] [$\bar{x}$]

(2.925)
(2.1)

Output of Statistical Calculation Results

Output	Operation	Equation
Mean	[INV] [$\bar{x}$]	$\bar{x} = \sum_{i=1}^{n} xi/n$
Standard deviation of sample	[INV] [σ^{n-1}]	$\sigma^{n-1} = \sqrt{\sum_{i=1}^{n}(xi-\bar{x})^2/(n-1)}$
Standard deviation population parameter	[INV] [σ^{n}]	$\sigma^{n} = \sqrt{\sum_{i=1}^{n}(xi-\bar{x})^2/n}$
Variance of sample	[INV] [σ^{n-1}] [x^2]	$V^{n-1} = \sum_{i=1}^{n}(xi-\bar{x})^2/(n-1)$
Variance of population	[INV] [σ^{n}] [x^2]	$V^{n} = \sum_{i=1}^{n}(xi-\bar{x})^2/n$
Sum	[INV] [Σx]	$\sum x$
Square sum	[INV] [Σx^2]	$\sum x^2$

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 expressed as "1" and false "0", which coresponds to the binary expression. In the octal or hexadecimal calculations, the values are converted to the 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.

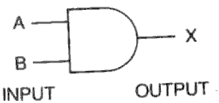
XOR : Exclusive sum of propositions
It produces 0 when all input values are either 1 or 0. Other cases are same as OR.

XNOR : Opposite of XOR
Combination of XOR and NOT.

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

AND

Symbol

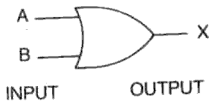


Truth table

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

OR

Symbol

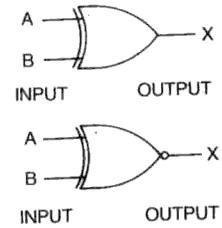


Truth table

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

XOR, XNOR

Symbol

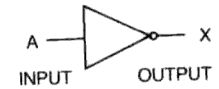


Truth table

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

NOT

Symbol



Truth table

INPUT A	OUTPUT X
1	0
0	1

8. SOLVING LINEAR EQUATIONS

The calculator has three modes for solving linear equations: the 2VLE mode for linear equations with two variables, the 3VLE mode for linear equations with three variables, and the QE mode for quadratic equations.

Linear Equations with Two Variables

1) $a_1x+b_1y=d_1$

2) $a_2x+b_2y=d_2$ $(a_1b_2-b_1a_2\neq 0)$

To solve, enter values for coefficients a_1, b_1, d_1, a_2, b_2, and d_2

Setting Up

To solve linear equations with two variables, first set the 2VLE mode by pressing MODE then, 5 . The equation ax+by=d will appear on the display and the coefficient symbols a b d will flash.

Entering Coefficients

To enter coefficients, input the coefficient's value using the numeric keypad, then press the respective keys for coefficient a, b or d. The coefficient symbols will stop flashing, indicating that a value has been entered. When all coefficients have been entered for the first equation, the a b d coefficient symbols will again flash to indicate readiness for entry of the second equation's coefficients. Enter the coefficients in the same way by inputting the values and pressing the respective coefficient keys.

Obtaining a Solution

When all coefficients have been entered, press the EXEC key. The symbol "x" will appear on the display together with the solution for x. Press the EXEC key again to display the symbol "y" along with the solution for y.

Checking or Changing Coefficients

To Check a Coefficient

After entering all coefficients and solving the equation, press the INV key, then press the key for the coefficient to be checked. The coefficient entered for the first equation will appear on the display.

To check the coefficient for the second equation, press EXEC again. 0^2 will appear on the display. Press INV and then the key for the coefficient to be equation will appear on the display.

Note: It is not possible to check coefficients for the first equation until the equation has been solved.

The EXEC key must be pressed before attempting the above operations.

Example: $\begin{cases} 2x+3y=9 \\ 8x+9y=3 \end{cases}$

To check coefficient a_2

Operation		Display
INV a	(	2^1.)
EXEC	(	0^2.)
INV a	(	8^2.)

To Change a Coefficient

To change the value of a coefficient, first follow the steps described above to display the desired coefficient. Enter the new value and press the coefficient key to enter the new value.

Example:

To change value of a_1 from 2 to 5.

Operation		Display
INV a	(	2^1.)
5 a	(	5^1.)

Coefficient values thus entered wil remain in memory even when an error has occurred.

Notes Concerning Coefficients

Range of values that may be entered:

$x \leqq 999999$ (mantissa only)

Allowable Fractions

Integers up to two places, with denominators and numerators each up to two places

It is also possible to enter as coefficients products of any of the four fundamental operations ($+ - \times \div$).

Example:

Enter 20/3

Coefficient's value is registered as 6.66667

- If the number of significant figures in a calculated result exceeds seven places, the value is rounded off to six places.
- It is not possible to perform operations other than the basic four (four example, calculations involving functions, memory or parentheses are not possible.)

Errors

If an error is made while entering coefficients, press the [CI/C] key to clear the entry.

If an error occurs during calculation of the solution, also press [CI/C] to clear. (After an error has been cleared, the calculator returns to waiting state to receive the entry of coefficient a_1.)

Linear Equations with Three Variables

1) $a_1x+b_1y+c_1z=d_1$

2) $a_2x+b_2y+c_2z=d_2$

3) $a_3x+b_3y+c_3z=d_3$

$(a_1b_2c_3+b_1c_2a_3+c_1a_2b_3-c_1b_2a_3-b_1a_2c_3-a_1c_2b_3 \neq 0)$

To obtain a solution for a linear equation with three variables, enter values for coefficients a_1, b_1, c_1, d_1, a_2, b_2, c_2, d_2, a_3, b_3, c_3, and d_3.

Setting up

To solve linear equations with three variables, press [MODE] then [6] to set the 3VLE mode. The formula ax+by+cz=d will appear on the display, and the coefficient symbols a b c d will flash.

Entering coefficients

To enter coefficients, input the coefficient's value using the numeric keypad, then press the respective key for coefficient a, b, c or d. The coefficient symbols will stop flashing on the display, indicating that a value has been entered.

Once all coefficients have been entered for the first equation, the a b c d coefficient symbols will again flash to indicate readiness for entry of the next set of coefficients. Use the same procedure to enter coefficients for the second and third equations.

Obtaining a solution

Once all coefficients have been entered, press the EXEC key. The symbol "x" will appear on the display together with the solution for x. Press the EXEC key again to display the "y" symbol along with the solution for y. Press the EXEC key once again to display the "z" symbol and solution for z.

Checking or changing coefficients

To Check a Coefficient

After entering all coefficients and solving the equation, first press the INV key; then press the coefficient key for the coefficient to be checked. The coefficient for the first equation will appear on the display.

To check the coefficient for the second equation, press EXEC again. 0^2 will appear on the display. Press INV and then the key for the coefficient to be checked. The coefficient for the second equation will appear on the display. Repeat the same procedure to check coefficients for the third equation.

* It is not possible to check coefficients for the first and second equations until the equation has been solved. The EXEC key must be pressed before attempting the above operations.

Example:

$$\begin{cases} x+2y+3z=11 \\ 4x-3y+2z=-8 \\ 2x+3y+5z=17 \end{cases}$$

To check coefficient a_3

Operation		Display
INV a	(	1^1.)
EXEC	(	0^2.)
EXEC	(	0^3.)
INV a	(	2^3.)

To Change a Coefficient

To change the value of a coefficient, first follow the steps described above to make the desired coefficient appear on the display. Input the new value and press the coefficient key to enter the new value.

Example:

To change value of a_2 from -3 to -6

Operation		Display
INV a	(	1^1.)
EXEC	(	0^2.)
INV b	(	-3^2.)
6 (-) b	(	-6^2.)

Coefficient values thus entered will remain in memory even when an error has occurred.

Notes concerning coefficients

Range of values that may be entered:

$x \leqq 999999$ (mantissa only)

Allowable Fractions

Integers up to two places, with denominators and numerators each up to two places.

It is also possible to enter as coefficients products of any of the four fundamental operations ($+ - \times \div$).

Example:

Enter 69/33

Coefficient's value is registered as 2.09091

- If the number of significant figures in a calculated result exceeds seven places, the value is rounded off to six places.
- It is not possible to perform operations other than the basic four (for example, calculations involving functions, memory or parentheses are not possible).

Errors

If an error is made while entering coefficients, press the [CI/C] key to clear the entry.

If an error occurs during calculation of the solution, also press [CI/C] to clear. (After an error has been cleared, the calculator returns to waiting state to receive the entry of coefficient a_1.)

Quadratic Equations

$ax^2+bx+c=0$ ($a\neq0$, $b^2-4ac\leqq0$)

To obtain a solution for a quadratic equation, enter values for coefficients a, b and c.

Setting up

To solve a quadratic equation, set the QE mode by pressing [MODE] then [7]. The formula "$ax^2+bx+c=0$" will appear on the display, and the coefficient symbols "a b c" will flash.

Entering coefficients

To enter coefficients, input a value using the numeric keypad, then press the desired coefficient key. The coefficient symbol will stop flashing on the display, indicating that a value has been entered.

Obtaining a solution

The solution for the quadratic equation is obtained by using the formula:

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

When values have been entered for all coefficients, press the [EXE] key. The symbol "x" will appear on the display along with the solution for "x". Press the [EXE] key again to obtain a second solution.

If the solution is a real number, pressing the [EXE] key displays both solutions in order. The "i" symbol will not appear on the display.

If the solution is an imaginary number, pressing the [EXE] key displays the "i" symbol along with the real number:

$$\frac{-b}{2a}$$

The following will appear on the display:

$$x=\frac{-b}{2a}\ \text{"i"}$$

Pressing the [EXE] key again displays the "i" symbol along with the imaginary number.

$$\pm\frac{\sqrt{b^2-4ac}}{2a}\,i$$

The following will appear on the display:

$$\sqrt{\frac{|b^2-4ac|}{2a}}i$$

Obtaining discriminant

The discriminant for the quadratic equation "$ax^2+bx+c=0$" is "b^2-4ac". After entering the coefficients, press the [d] key to obtain the solution for discriminant.

Checking or changing coefficients

To Check a Coefficient

After entering all coefficients, press the [INV] key and then the key for the coefficient to be checked.

Example: $16x^2-24x+9=0$

To check the value for coefficient

Operation		Display
[1] [6] [a]	(	16.)
[2] [4] [+/-] [b]	(	−24.)
[9] [c]	(	9.)
[INV] [b]	(	−24.)

To Change a Coefficient

To change the value of a coefficient, first follow the procedure above to display the value of the desired coefficient. Then input the new value and press the corresponding coefficient key. The new value will be entered.

Example:

To change the value of c from 9 to 5

Operation		Display
[INV] [c]	(	9.)
[5] [c]	(	5.)

Coefficients values thus entered will remain in memory even when an error has occurred.

Notes concerning coefficients

Range of values that may be entered:

$x < 1\times10^{100}$ (mantissa only)

Allowable Fractions:

Integers up to two places, with denominators and numerators each up to two places.

It is also possible to enter as coefficients products of any of the four fundamental operations ($+ - \times \div$).

Example:

Enter 69/33

The coefficient's value is registered as 2.09090909091

- If the number of significant figures in a calculated result is eleven places or more, the value is rounded off ten places.
- It is not possible to perform operations other than the basic four (for example, calculations involving functions, memory or parentheses are not possible).

Errors

If an error is made while entering coefficients, press the [CI/C] key to clear the entry.

If an error occurs during calculation of a solution, also press [CI/C] to clear. (After an error has been cleared, the calculator returns to waiting states to receive the entry of coefficient a_1.)

9. 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:
   $x=0,1\times10^{-99}\leqq|x|\leqq9.999999999\times10^{99}$
   x: Calculation result
2. When the contents of the memory are outside the following range:
   $x=0,1\times10^{-99}\leqq|x|\leqq9.999999999\times10^{99}$
   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.
   $x=0,1\times10^{-99}\leqq|x|\leqq9.999999999\times10^{99}$
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 $n\geqq10^{10}$
7. When the number of operators stored in the calculator during parentheses and arithmetic calculation exceeds 6 levels.
8. When more than 15 open parentheses are used at one time.

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

II. Calculation Examples
Rechenbeispiele
Exemples de calculs
Ejemplos de cálculo
Esempi di calcolo

1. Decimal Calculations
Dezimal-Rechnungen
Calculs décimaux
Cálculos decimales
Calcoli con decimali

[Mode setting]

Calculation Mode : Decimal Mode (DEC) MODE 1

Display Mode : Floating INV F

Decimal Point : Reset INV FIX •

[Betriebsarteneinstellung]

Rechen-Betriebsart : Dezimal-Betriebsart (DEC) MODE 1

Anziege-Betriebsart : Fließkomma INV F

Komma-Festlegung : Rückstellung durch INV FIX •

[Réglage du mode]

Mode de calcul : Mode décimal (DEC) MODE 1

Mode d'affichage : Virgule flottante INV F

Spécification de virgule : Remettre à zéro INV FIX •

[Ajuste de modo]

Modo de cálculo : Modo Decimal (DEC) MODE 1

Modo de representación : Flotante INV F

Punto decimal : Presione INV FIX •

[Attivazione del modo]

Modo di calcolo : Modo decimale (DEC) MODE 1

Modo di visualizzazione : Fluttuante INV F

Identificazione del punto decimale : Ripristino INV FIX •

Expression	Operation (Display)
Ausdruck	Ausführung (Anzeige)
Expression	Opération (affichage)
Expresión	Operación (Visualizador)
Expressione	Operazione (Visualizzazione)

Addition and Subtraction
Addition und Subtraktion
Addition et soustraction
Suma y resta
Addizione e sottrazione

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
Multiplication et division
Multiplicación y división
Moltiplicazione e divisione

$3.6 \times 1.7 = 6.12$	3 • 6 × 1 • 7 = (6.12)
$592 \div 4.8 =$ 123.3333333	5 9 2 ÷ 4 • 8 = (123.3333333)

Mixed Calculations
Gemischte Rechnungen
Calculs mixtes
Cálculos mixtos
Calcolo misto

$3+5\times7=38$	3 + 5 × 7 = (38.)
$6\times9+3\div2=55.5$	6 × 9 + 3 ÷ 2 = (55.5)

Exponential Calculations
Exponentielle Rechnungen
Calculs exponentiels
Cálculo exponencial
Calcolo esponenziale

$(321\times10^{-14})\times(65\times10^{78})$ $=2.0865\times10^{18}$	3 2 1 EXP 1 4 +/− × 6 5 EXP 2 8 = (2.0865^{18})

Fractional Calculations
Bruchrechnungen
Calculs fractionnaire
Cálculos fraccionarios
Calcoli con frazioni

$\frac{2}{3}+3\frac{4}{7}-\frac{5}{4}=2\frac{83}{84}$	2 a b/c 3 + 3 a b/c 4 a b/c 7 − 5 a b/c 4 = (2.83 4 84.)
$\left(\frac{3}{5}+2\frac{3}{8}\right)\times\frac{2}{5}\div2-1$ $=-\frac{81}{200}$	(3 a b/c 5 + 2 a b/c 3 a b/c 8) × 2 a b/c 5 ÷ 2 − 1 = (−81 200.)

Constant Calculations
Rechnungen mit Konstanten
Calculs à facteur constant
Cálculos con constantes
Calcolo con costante

$2+\underline{3}=5$	2 + 3 =	(5.)
$4+\underline{3}=7$	4 =	(7.)
$1-\underline{2}=-1$	1 − 2 =	(−1.)
$2-\underline{2}=0$	2 =	(0.)
$3\times\underline{2}=6$	3 × 2 =	(6.)
$4\times\underline{2}=8$	4 =	(8.)
$6\div\underline{3}=2$	6 ÷ 3 =	(2.)
$9\div\underline{3}=3$	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.

- Bei Addition mit einer Konstanten wird der Addend
  Bei Subtraktion mit einer Konstanten wird der Subtrahend
  Bei Multiplikation mit einer Konstanten wird der Multiplikator
  Bei Division mit einer Konstanten wird der Divisor
  } automatisch als Konstante festgelegt

- 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.

- En la suma de constantes, el sumando
  En la resta de constantes, el substraendo
  En la multiplicación de constantes, el multiplicador
  En la división de constantes, el divisor

  } es especificado automáticamente como la constante

- Nella addizione con costante, l'addendo
  Nella sottrazione con costante, il sottraendo
  Nella moltiplicazione con costante, il moltiplicatore
  Nella divisione con costante, il divisore

  } viene automaticamente identificato come la costante.

Parentheses Calculations
Klammerrechnung
Calculs entre parenthèses
Cálculos con paréntesis
Calcolo con parentesi

3+{(4−3.6+5)× 0.8−6}×4.2 =−4.056	3 + ((4 − 3 . 6 + 5) × 0.8 − 6) × 4.2 = (−4.056)

Percentage Calculations
Prozentrechnung
Calculs de pourcentage
Cálculos de porcentajes
Calcolo della percentuale

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

Add-On Calculations
Zuschlagsrechnung
Calculs de majoration
Cálculos de incrementos
Calcolo di maggiorazione (ADD-ON)

200+(200×20%) =240	2 0 0 + 2 0 % = (240.)

Discount Calculations
Abzugsrechnung
Calculs de rabais
Cálculos de descuentos
Calcolo di sconto

200−(200×20%) =160	2 0 0 − 2 0 % = (160.)

Constant Percentage Calculations
Konstante-Prozentrechnung
Calculs de pourcentages avec facteur constant
Cálculos de porcentajes con constantes
Calcolo della percentuale con costante

1200×12%=144	1 2 0 0 × 1 2 % = (144.)
1500×12%=180	1 5 0 0 = (180.)
$\frac{765}{987}$=77.50759878%	7 6 5 ÷ 9 8 7 % = (77.50759878)
$\frac{654}{987}$=66.26139818%	6 5 4 = (66.26139818)

Memory Calculations
Speicherrechnung
Calculs avec mémoire

Cáiculos con memoria
Calcolo con memoria

	[0] [SM] (0.)
20×30= 600	[2] [0] [×] [3] [0] [=] [M+]
40×50= 2000	(M 600.)
+) 15×20= 300	[4] [0] [×] [5] [0] [=] [M+]
2900	(M 2000.)
−) 125×40=−5000	[1] [5] [×] [2] [0] [=] [M+]
−2100	(M 300.)
	[RM] (M 2900.)
	[1] [2] [5] [×] [4] [0] [=]
	[+/−] [M+] (M−5000.)
	[RM] (M−2100.)

Composition Ratio Calculations
Prozentuale Verteilungsrechnung
Calculs de répartition proportionnelle
Cálculos porcentuales de composición
Calcolo della ripartizione proporzionale

%	[1] [2] [5] [+] [1] [8] [5] [+] [1] [9] [0] [=] [SM]
A 125 (25)	(M500.)
B 185 (37)	[1] [2] [5] [÷] [RM] [%] [=] [SM]
C 190 (38)	(M 25.)
(500) (100)	[1] [8] [5] [=] [M+] (M 37.)
	[1] [9] [0] [=] [M+] (M 38.)
	[RM] (M100.)

2. Binary/Hexadecimal Calculations
Binär-/Hexadezimal-Rechnungen
Calculs en binaire/hexadécimal
Cálculos binarios/hexadecimales
Calcoli con numeri binario/esadecimali

1. Binary Calculations
Binärrechnung
Calculs en binaire
Cálculo binario
Calcolo binario

Calculation Mode	: Binary (BIN)	[MODE] [2]
Rechen-Betriebsart	: Binär (BIN)	[MODE] [2]
Mode de calcul	: Binaire (BIN)	[MODE] [2]
Modo de cálculo	: Binarios (BIN)	[MODE] [2]
Modo di calcolo	: Binario (BIN)	[MODE] [2]

Addition and Subtraction
Addition und Subtraktion
Addition et soustraction
Suma y resta
Addizione e sottrazione

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]
=110111	[−] [1] [0] [1] [0] [1] [1] [0]
	[0] [=] (110111.)

Multiplication and Division
Multiplikation und Division
Multiplication et division

Multiplicación y división
Moltiplicazione e divisione

11×1001=11011	1 1 × 1 0 0 1 = (11011.)
1101111÷1010	1 1 0 1 1 1 1 ÷
≒1011	1 0 1 0 = (1011.)

Mixed Calculations
Gemischte Rechnungen
Calculs mixtes

Cálculos mixtos
Calcolo misto

(101010+1100)× 11÷1111=1010	(1 0 1 0 1 0 + 1 1 0 0) × 1 1 ÷ 1 1 1 1 = (1010.)

2. Hexadecimal Calculations
Hexadezimal-Rechnungen
Calculs en hexadécimal
Cálculos hexadecimales
Calcoli esadecimali

Calculation Mode	: Hexadecimal (HEX)	MODE 3
Rechen-Betriebsart	: Hexadezimal (HEX)	MODE 3
Mode de calcul	: Hexadécimal (HEX)	MODE 3
Modo de cálculo	: Hexadecimales (HEX)	MODE 3
Modo di calcolo	: Esadecimali (HEX)	MODE 3

Addition and Subtraction
Addition und Subtraktion
Addition et soustraction
Suma y resta
Addizione e sottrazione

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
Multiplication et division

Multiplicación y división
Moltiplicazione e divisione

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

Mixed Calculations
Gemischte Rechnungen
Calculs mixtes

Cálculos mixtos
Calcolo misto

(AB+C)×D÷F≒ 9E	(A B + C) × D ÷ F = (9E.)

- Calculations combining binary, decimal and hexadecimal numbers can also be performed.
- Rechnungen unter gleichzeitiger Verwendung von Binär-, Dezimal- und Hexadezimalzahlen sind ebenfalls möglich.
- Des calculs combinant des nombres en binaire, décimal et hexadécimal peuvent aussi être réalisés.
- También pueden realizarse cálculos combinando números binarios, decimales y hexadecimales.
- È possibile eseguire anche calcoli combinati con numeri binari, decimali ed esadecimali.

3. Basic Function Calculations
Funktionsrechnungen
Calculs de fonctions de base
Cálculos de las funciones básicas
Calcoli delle funzioni di base

Trigonometric Functions
Trigonometrische Funktionen
Fonctions trigonométriques
Funciones trigonométricas
Funzioni trigonometriche

$\sin 53^\circ = 0.79863551$	(DEG) [5] [3] [sin] (0.79863551)
$\tan 65^{(G,RAD)} =$ 1.631851687	(GRAD) [6] [5] [tan] (1.631851687)
$\sin \frac{\pi}{3}^{RAD} =$ 0.866025403	(RAD) [π] [÷] [3] [=] [sin] (0.866025403)

Inverse Trigonometric Functions
Inverse trigonometrische Funktionen
Fonctions trigonométriques inverses
Funciones trigonométricas inversas
Funzioni trigonometriche inverse

$\sin^{-1} 0.3 =$ 17.45760312°	(DEG) [.] [3] [INV] [sin⁻¹] (17.45760312)
$\cos^{-1} 0.8 =$ 36.86989765°	(DEG) [.] [8] [INV] [cos⁻¹] (36.86989765)
$\tan^{-1} 1.5 =$ 56.30993247°	(DEG) [1] [.] [5] [INV] [tan⁻¹] (56.30993247)
$\sin^{-1} 1 = 1.570796327$ (rad)	(RAD) [1] [INV] [sin⁻¹] (1.570796327)

Logarithmic Functions
Logarithmische Funktionen
Fonctions logarithmiques

Funciones logaritmicas
Funzioni logaritmiche

$\log 123 = 2.089905111$	[1] [2] [3] [log] (2.089905111)
$\ln 123 = 4.812184355$	[1] [2] [3] [ln] (4.812184355)

Exponential Functions
Exponentielle Funktionen
Fonctions exponentielles

Funciones exponenciales
Funzioni esponenziali

$e^{22} = 3584912846.$	[2] [2] [INV] [e^x] (3584912846.)
$10^{2.3} = 199.5262315$	[2] [.] [3] [INV] [10^x] (199.5262315)

Square Calculations
Quadratrechnung
Carrés

Cálculos de cuadrados
Calcoli di elevazione al quadrato

$1.25^2 = 1.5625$	[1] [.] [2] [5] [x^2] (1.5625)

Power Calculations
Potenzierung
Puissances

Cálculos de potencia
Elevazione a potenza

$5.43^3 = 160.103007$	[5] [.] [4] [3] [a^x] [3] [=] (160.103007)
$2^{3.4} = 10.55606329$	[2] [a^x] [3] [.] [4] [=] (10.55606329)

Constant Power Calculations
Potenzieren mit Konstanten
Calculs à puissance constante
Cálculos con potencia constante
Calcolo con potenza costante

$2^{2.34} = 5.063026376$	[2] [a^x] [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
Quadratwurzel
Extraction de la racine carrée
Extracción de la raíz cuadrada
Estrazione della radice quadrata

$\sqrt{(5+6)\times 7}=$	(5 + 6) × 7 =
8.774964387	INV √ (8.774964387)

Multiple Root
Multiple Wurzel
Racine multiple

Raíz múltiple
Radice multipla

$\sqrt[5.3]{100}=2.384286779$	1 0 0 INV $\sqrt[x]{}$ 5 • 3 = (2.384286779)

Extraction of Cubic Root
Ziehen einer dritten Wurzel
Extraction de la racine cubique

Extracción de raíz cúbica
Estrazione della radice cubica

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

Reciprocal Calculations
Reziprokrechnung
Calculs d'inverse

Cálculos recíprocos
Calcolo reciproco

$\frac{1}{2\times 3+4}=0.1$	2 × 3 + 4 = 1/x (0.1)

Factorial Calculations
Fakultät
Calculs de factorielle

Cálculos factoriales
Calcoli fattoriali

$(4\times 2-3)!=120$	4 × 2 − 3 = INV n! (120.)

Trigonometric Calculations
Trigonometrische Rechnungen
Calculs trigonométriques

Cálculos trigonométricos
Calcoli trigonometrici

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

Hyperbolic Functions
Hyperbelfunktionen
Fonctions hyperboliques
Funciones hiperbólicas
Funzioni iperboliche

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

Inverse Hyperbolic Functions
Inverse hyperbolische Funktionen
Fonctions hyperboliques inverses
Funciones hiperbólicas inversas
Funzioni iperboliche inverse

$\sinh^{-1}1.5\times 10^{25}=$	1 • 5 EXP 2 5 INV HYP
58.66323961	sin (58.66323961)

Degree → Radian Conversion
Altgrad → Radiant-Umwandlung
Conversion degrés → radians
Conversión de grados → radianes
Conversione di grado → radiante

$60^\circ=1.047197551^{RAD}$	6 0 INV DRG▸ (1.047197551)

Radian → Gradient Conversion
Radiant → Neugrad-Umwandlung
Conversion radians → grades
Conversión de radianes → gradientes
Conversione radiante → gradiente

$2^{RAD}=$ 127.3239545^{GRAD}	(RAD) 2 INV DRG▶ (127.3239545)

Gradient → Degree Conversion
Neugrad → Altgrad-Umwandlung
Conversion grades → degrés
Conversión de gradientes → grados
Conversione gradiente → grado

$120^{GRAD}=108°$	(GRAD) 1 2 0 INV DRG▶ (108.)

Logarithmic Mean
Logarithmisches Mittel
Moyenne logarithmique

Media logaritmica
Media logaritmica

$\overline{L}=\frac{4-8}{\ln 4-\ln 8}$ $=5.770780164$	(4 − 8) ÷ (4 ln − 8 ln) = (5.770780164)

Geometric Mean
Geometriches Mittel
Moyenne géométrique

Media geométrica
Media geometrica

$\overline{G}=$ $\sqrt[4]{1.23\times1.48\times1.96\times2.2}$ $=1.673830182$	1 • 2 3 × 1 • 4 8 × 1 • 9 6 × 2 • 2 = INV $\sqrt[x]{}$ 4 = (1.673830182)

Permutation
Permutationen
Permutations

Permutaciones
Permutazioni

${}_nP_r=\frac{n!}{(n-r)!}$ ${}_5P_3=\frac{5!}{(5-3)!}=60$	5 INV n! ÷ (5 − 3) INV n! = (60.)

Combinations
Kombinationen
Combinaisons

Combinaciones
Combinazioni

${}_nC_r=\frac{n!}{r!(n-r)!}$ ${}_5C_3=\frac{5!}{3!\times(5-3)!}$ $=10$	5 INV n! ÷ (3 INV n! × (5 − 3) INV n!) = (10.)

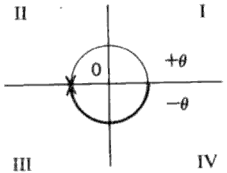
Polar Conversion
Umwandlung von Polarkoordinaten
Conversion polaire
Conversión polar
Conversione polare

$(1, \sqrt{3})$ $r=2$ $\theta=60°$	(DEG) 1 a 3 INV $\sqrt{}$ b R→P (2.) b (60.)

Rectangular Conversion
Umwandlung von rechtwinkligen Koordinaten
Conversion rectangulaire
Conversion rectangular
Conversione rettangolare

$r=1.23$ $\times10^2$ (x, y) $\theta=43.2°$ $x=89.66314117$ $y=84.19929403$	(DEG) 1 • 2 3 EXP 2 a 4 3 • 2 b INV R→P (89.66314117) b (84.19929403)

* In polar conversion θ in the third and fourth quadrant are as shown in the diagram.
* Bei Polar-Umwandlung liegt θ im dritten und vierten Quadranten wie in der Zeichnung dargestellt.
* Dans la conversion polaire, θ du troisième et du quatrième quadrant se présente de la manière indiquée dans le diagramme.
* En la conversión polar, θ en el cuadrante tercero y en el cuarto, son como se ilustra en el diagrama.
* Nella conversione polare, θ nel terzo e quarto quadrante sono come illustrato.



Degrees-Minutes-Seconds → Decimal Degrees
Grad-Minuten-Sekunden → Dezimalgrad
Degrés-Minutes-Secondes → Degrés décimaux
Grados-Minutos-Segundos → Grados decimales
Gradi-Minuti-Secondi → Gradi decimali

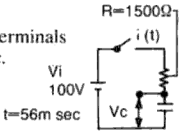
123°45'06"→	1 2 3 • 4 5 0 6
123.7516667°	°'" (123.7516667)

Decimal Degrees → Degrees-Minutes-Seconds
Dezimalgrad → Grad-Minuten-Sekunden
Degrés décimaux → Degrés-Minutes-Secondes
Grados decimales → Grados-Minutos-Segundos
Gradi decimali → Gradi-Mununti-Secondi

2.3456°→2°20'44.16"	2 • 3 4 5 6 INV °'"
	(2°20'44"16)

4. Applied Calculations
Angewandte Rechnungen
Calculs appliqués
Cálculos aplicados
Calcoli applicati

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



[Elektrizität]
Elektrischer Stromkreis
Gesucht ist die Spannung Vc an beiden Anschlußklemmen des Kondensators bei t=56 m sec.

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

[Electricidad]
Problema del circuito eléctrico
Obtenga la tensión Vc en los dos terminales del condensador a t=56 m seg.

[Elettricità]
Problema del circuito elettrico
Ottenere la tensione Vc ai due capi del condensatore a t=56 m sec.

$$Vc = Vi(1 - e^{-\frac{t}{RC}})$$
$$= 100 \times (1 - e^{-\frac{56 \times 10^{-3}}{1500 \times 50 \times 10^{-6}}}) = 52.60562649$$

1 0 0 × (1 − (1 5 0 0 × 5	
0 EXP 6 +/− ÷ 5 6 EXP 3 +/−) 1/x +/−	INV ex
} =	(52.60562649)

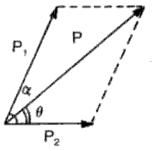
[Physics]
Synthesis of Two Vectors
Obtain θ at P_1=30, P_2=15, α=60°.

[Physik]
Addition zweier Vektoren
Gesucht ist θ bei P_1=30, P_2=15, α=60°.

[Physique]
Somme de deux vecteurs
Calculer θ pour P_1=30, P_2=15, α=60°.

[Física]
Síntesis de los dos vectores
Obtenga la θ a P_1=30, P_2=15, α=60°.

[Fisica]
Sintesi dei due vettori
Ottenere θ a P_1=30, P_2=15, α=60°.



$$P=\sqrt{P_1^2+P_2^2+2P_1P_2\cos\alpha}$$
$$=\sqrt{30^2+15^2+2\times30\times15\times\cos60^\circ}$$
$$=39.68626967$$

$$\theta=\tan^{-1}\left(\frac{P_1\sin\alpha}{P_1\cos\alpha+P_2}\right)=\tan^{-1}\left(\frac{30\sin60^\circ}{30\cos60^\circ+15}\right)$$
$$=40.89339465$$

[DEG]

3 0 x^2 + 1 5 x^2 + 2 × 3 0 ×
1 5 × 6 0 cos = INV $\sqrt{\ }$ (39.68626967)
3 0 × 6 0 sin ÷ (3 0 × 6 0 cos
+ 1 5) = INV tan^{-1} (40.89339465)

5. Statistical Calculations
Statistik-Rechnungen
Calculs statistiques
Cálculos estadísticos
Calcoli statistici

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

Berechne die Anzahl (n), den Mittelwert ($\overline{x}$), die Standardabweichung der Probe (σ^{n-1}), Varianz (V^{n-1}), die Parameter der Standardabweichung von der Gesamtheit (σ^n), Varianz der Gesamtheit (V^n), die Summe ($\sum x$), und Quadratsumme ($\sum x^2$), aus den nachstehend abgebildeten Daten.

Calculer le nombre (n), la valeur moyenne ($\overline{x}$), 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 ($\sum x$) et la somme des carrés ($\sum x^2$) à partir des données indiquées.

Calcule el número (n), el valor medio ($\overline{x}$), la desviación estándar de la muestra (σ^{n-1}), la variación (V^{n-1}), la desviación estándar del parámetro de población (σ^n), la variación de la población (V^n), la suma ($\sum x$) y suma de cuadrados ($\sum x^2$) de los datos indicados.

Calcolare il numero (n), il valore medio ($\overline{x}$), lo scarto quadratico medio (σ^{n-1}), la varianza (V^{n-1}), il parametro dello scarto quadratico medio della popolazione (σ^n), la varianza della popolazione (V^n), la somma ($\sum x$) e la somma dei quadrati ($\sum x^2$) dai dati indicati.

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.

Statistik

Statistische Berechnungen (Durchschnitt, Standardabweichung)
Sie haben 20 große Portionen Pizza für eine Partie gekauft. Die große Pizza soll 30 cm Durchmesser haben. Die tatsächlichen Größen erweisen sich aber als wie folgend verschieden.

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.

Estadística

Cálculos estadísticos (promedios, desviación estándar)
Usted compró 20 pizzas grandes para una fiesta. La más grande se supone que tiene un diámetro de 30 cm. Sus tamaños sin embargo, son distintos, como se muestra a continuación.

Statistica

Calcoli statistici (media, deviazione standard)
Avete comperato 20 pizze grandi per un party. Ognuna dovrebbe avere un diametro di 30 cm. Le loro grandezze vriavano però nel modo indicato di seguito.

Diameter Durchmesser Diamètre Diámetro Diametro (cm)	Midpoint Mittelwert Diamètre moyen Punto medio Media (cm)	Frequency Häufigkeit Fréquence Frecuencia Frequenza
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 Ausführung Opération Operación Operazione	Display Anzeige Affichage Indicación Visualizzazione	Explanation Erklärung Explication Explicación Descrizione
MODE 4	0.	Statistic mode Betriebsart Statistik Mode statistique Modo estadísticos Modo di calcolo statistici
INV FIX 4	0.0000	
2 8 × 2 SUM	2.0000	Gives the sum of frequency Ergibt die Häufigkeitssumme Le tableau ci-dessus donne la somme des fréquences Ofrece la suma de las frecuencias Calcola la somma della frequenza
2 9 × 4 SUM	6.0000	
3 0 × 5 SUM	11.0000	
3 1 × 6 SUM	17.0000	
3 2 × 3 SUM	20.0000	
INV n	20.0000	Total number of data Gesamtzahl von Daten Nombre total de données Número total de datos Numero totale di dati

INV $\bar{x}$	30.2000	Mean Mittelwert, Moyenne, Media, Media
INV Σx	604.0000	Sum of the values Summe der Werte Somme des valeurs Suma de los valores Somma dei valori
INV Σx^2	18270.0000	
INV σ^{n-1}	1.2397	Standard deviation of sample Standardabweichung der Stichprobe Ecart-type d'échantillon Desviación estándar de muestra Debiazione Standard di campione
INV σ^{n}	1.2083	Standard deviation of population Standardabweichung der Bevölkerung Ecart-type de la population Desviación estándar de la población Deviazione standard della popolazione

6. Logical Calculations
Boolesche Algebra
Calcul logique
Cálculo lógico
Calcoli logiche

Example: Calculate AND and OR with (1100) and (1010) in the binary
Beispiel: Berechne AND und OR bei (1100) und (1010) in binärer Form.
Exemple: Calculer AND et OR avec (1100) et (1010) en binaire.
Ejemplo: Cálculo de AND y OR con (1100) y (1010) en el modo binario
Esempio: Calcolare AND e OR con i valori binari 1100 e 1010.

Key Operation	Display
Ausführung	Anzeige
Opération de touche	Affichage
Operación	Indicación
Operazione	Visualizzazione

MODE 2
1100 AND 1010 = (1000.)
1100 OR 1010 = (1110.)

Logical Calculations in binary/hexadecimal
Boolesche Algebra in binär/sedezimal
Calculs logiques en binaire/hexadécimal
Cálculos lógicos en los modos binario/hexadecimal
Calcoli logici nel modo binario o esadecimale

Mode Betriebsart Mode Modo Modo	Operation Ausführung Opération Operación Operazione	Display Anzeige Affichage Indicación Visualizzazione
Binary Binär Binaire Binarios Binario MODE 2	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.

Hexadecimal Sedezimal Hexadécimal Hexadecimal Esadecimale MODE 3	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. Solving Equations
Lösen von Gleichungen
Résolution des équations
Resolución de ecuaciones
Soluzione delle equazioni

Solving simultaneous linear equations with two variables.
Lösen simultaner linearer Gleichungen mit zwei Variablen.
Résolution d'équations linéaires simultanées à deux variables.
Resolución de ecuaciones lineales simultáneas con dos variables.
Soluzione di equazioni lineari simultanee con due variabili.

$4x+5y=9$
$2x+6y=15$

Key operation Ausführung Opération Operación Operazione	Display Anzeige Affichage Indicación Visualizzazione	Explanation Erklärung Explication Explicación Descrizione
MODE 5	0^1.	2VLEMode 2VLE-Betriebsart Mode2VLE ModeVLE2 Funzione2VLE
4 a	4^1.	Entering the coefficieients of the first expression
5 b	5^1.	Eingabe der Koeffizienten des ersten Ausdrucks Introduction des coefficients de la premiere expression Introduccion de los coeficientes de la primera expresion Immissione dei coefficenti della prima espressione
9 d	0^2.	Completion of entry Beendigung der Eingabe Terminaison de l'introduction Terminacion de introduccion Completamento dell'immissione

2 a	2^2.	Entering the coefficients of the second expression Eingabe der Koeffizienten des zweiten Ausdrucks Introduction des coefficients de la seconde expression Introduccion de los coeficientes de la segunda expresion Immissione dei coefficenti della seconda espressione
6 b	6^2.	
1 5 d	15^2.	Completion of entry Beendigung der Eingabe Terminais de l'introduction Terminacion de introduccion Completamento dell'immissione
EXEC	x=−1.5	Solving for X Losung fur X Resolution pour X Resolucion para X Soluzione diX
EXEC	y=3.	Solving for Y Losung fur Y Resolution pour Y Resolución para Y Soluzione di Y

Solving simultaneous linear equations with three variables.
Lösen simultaner linearer Gleichungen mit drei Variablen.
Résolution d'équations linéaires simultanées à trois variables.
Resolución de ecuaciones lineales simultáneas con tres variables.
Soluzione di equazioni lineari simultanee a tre variabili.

2x+4y−5z=5
x−2y+z=11
4x+3y−2z=17

Key operation Ausfuhrung Operation Operacion Operazione	Display Anzeige Affichage Indicacion Visualizzazione	Explanation Erkarung Explication Explicacion Descrizione
MODE 6	0^1.	3VLE Mode 3VLE-Betriebsart Mode 3VLE Modo VLE3 Funzione3VLE
2 a	2^1.	Entering the coefficients of the first expression Eingade der Koeffizienten des ersten Ausdrucks Introduction des coefficients de la premiere expression Introduccion de los coeficientes de la primera expresion Immissione dei coefficenti della prima espressione
4 b	4^1.	
5 +/− c	-5^1.	
5 d	0^2.	Completion of entry Beendigung der Eingade Terminaison de l'introduction Terminacion de introduccion Completamento dell'immissione
1 a	1^2.	Entering the coefficients of the second expression Eingabe der Koeffizienten des zweiten Ausdrucks Introduction des coefficients de la seconde expression Introduccion de los coeficientes de la segunda expresion Immission dei coefficenti della seconda espressione
2 +/− b	-2^2.	
1 c	1^2.	
1 1 d	0^3.	Completion of entry Beendigung der Eingabe Terminaison de l'introduction Terminacion de introduccion Comletamento dell'immissione
4 a	4^3.	Entering the third expression Eingabe der Koeffizienten des dritten Ausdrucks Introduction der coefficients de la troisieme expression Introduccion de los coeficientes de la tercera expresion Immissione dei coefficenti della terza espressione
3 b	3^3.	
2 +/− c	-2^3.	

[1] [7] [d]	17^3.	Completion of entry Beendiung der Eingabe Terminaison de l'introduction Terminacion de introduccion Completamento dell'immissione
EXEC	x=6.	Solving for X Losung fur X Resolution pour X Resolucion para X Soluzione di X
EXEC	y=−3	Solving for Y Losung fur Y Resolution pour Y Resolucion para Y Soluzione di Y
EXEC	z=−1	Solving for Z Losung fur Z Resolution pour Z Resolucion para Z Soluzione di Z

Solving quadratic equations and obtaining a discriminant.
Lösen quadratischer Gleichungen und Erhalt einer Diskriminante.
Résolution d'équations quadratiques, et calcul du discriminant.
Resolución de ecuaciones cuadráticas y obtención de un discriminante.
Soluzione di equazioni di secondo grado e calcolo del discriminatore.

$2x^2+x-21=0$

Key operstino Ausfuhrung Operation Operacion Operazipne	Display Anzeige Affichage Indicacion Visualizzaione	Explanation Erkarung Explication Explicacion Descrizione
MODE [7]	0.	QE Mode ¡£-Betriebsart Mode QE Mode QE Funzione QE
[2] [a]	2.	Entering coefficients Eingabe der Koeffi zienten Introduction des coefficients Introduccion de coeficientes Immissione deicoefficenti
[1] [b]	1.	
[2] [1] [+/−] [c]	−21.	
[d]	169	Completion of entry Beendigung der Eingabe Terminaison de l'introduction Terminacion de introduccion Completamento dell'immissione
EXEC	x=3.	Obtsining a discriminant Erhalt einer Diskriminante Obtention du discriminant Obtencion de un discriminante Calcolo del discriminatore
EXEC	x=−3.5	Obtaining a solution Erhalt eines Ergebnisses Obtention de la solution Obtencion de una solucion Calcolo della soluzione

8. Calculation Range of Functions
Rechenbereich der Funktionen
Plage de calculs des fonctions
Rango de calculo de las funciones
Gamma di calcolo delle funzioni

Function Funktion Fonction Función Funzione	Calculation Range Rechnungsbereich Plage de calculs Rango de calculo Gamma di calcolo
sin x	DEG $x=0, 5.729577951\times10^{-8}<\|x\|\leq 4.499999999\times10^{10}$
	RAD $0\leq\|x\|\leq785398163.3$
	GRAD $x=0, 6.366197723\times10^{-8}<\|x\|\leq 4.999999999\times10^{10}$
cos x	DEG $0\leq\|x\|\leq4.500000008\times10^{10}$
	RAD $0\leq\|x\|\leq785398164.9$
	GRAD $0\leq\|x\|\leq5.000000009\times10^{10}$
tan x	DEG $x=0, 5.729577951\times10^{-8}<\|x\|\leq 4.499999999\times10^{10}$ $\|x\|\neq90°+180°\times n$
	RAD $0\leq\|x\|\leq785398163.3$ $\|x\|\neq90°+180°\times n$
	GRAD $x=0, 6.366197723\times10^{-8}<\|x\|\leq 4.999999999\times10^{10}$ $\|x\|\neq90°+180°\times n$

Function Funktion Fonction Función Funzione	Input Range Eingabebereich Plage d'entrée Rango de entrada Gamma d'impostazione
$\sin^{-1}x$	DEG $x=0, 1.570796326\times10^{-8}<\|x\|\leq1$
	RAD $0\leq\|x\|\leq1$
	GRAD $x=0, 1.570796326\times10^{-8}<\|x\|\leq1$
$\cos^{-1}x$	DEG $0\leq\|x\|<1$
	RAD $0\leq\|x\|<1$
	GRAD $0\leq\|x\|<1$
$\tan^{-1}x$	DEG $x=0, 1.570796326\times10^{-8}<1\times1\leq 9.999999999\times10^{99}$
	RAD $0\leq\|x\|\leq 9.999999999\times10^{99}$
	GRAD $x=0, 1.570796326\times10^{-8}<\|x\|\leq9.999999999\times10^{99}$
ln x	$0<x$
Log x	$0<x$
e^x	$-227.9559243<x\leq230.2585092$
10^x	$-99.00000001<x\leq99.99999999$
n!	$0\leq x\leq69$
1/x	$1\times10^{-99}\leq\|x\|\leq1\times10^{99}$
x^2	$x=0, 3.162277660\times10^{-50}<\|x\|<9.999999999\times10^{49}$
$\sqrt{x}$	$0\leq x\leq9.999999999\times10^{99}$
$\sqrt[3]{x}$	$0\leq\|x\|\leq9.999999999\times10^{99}$
a^x	$a>0, -227.9559243\leq x\cdot\ln\|a\|\leq230.2585092$
$\sqrt[x]{a}$	$a>0, -227.9559243\leq(\ln\|a\|)\ x\leq230.2585092$

- The accuracy in the RAD mode increases close to the zero and divergence points.
- Die Genauigkeit in der RAD-Betriebsart nimmt in der Nähe von 0 und an den Divergenzpunkten zu.
- La précision dans le mode RAD augmente à proximité de zéro et des points de divergence.
- La precisión en el modo RAD se incrementa cerca del cero y de los puntos de divergencia.
- La precisione nel modo RAD aumenta avvicinandosi ai punti zero e di divergenza.

Function Funktion Fonction Función Funzione	Inqut Range Eingabebereich Plage d'entrée Rango de entrada Gamma d'impostazione
sin hx	$0 \leqq \lvert x \rvert \leqq 230.2585092$
cos hx	$0 \leqq \lvert x \rvert \leqq 230.2585092$
tan hx	$0 \leqq \lvert x \rvert \leqq 9.999999999 \times 10^{99}$
sin $h^{-1}x$	$0 \leqq \lvert x \rvert \leqq 4.999999999 \times 10^{99}$
cos $h^{-1}x$	$1 \leqq x \leqq 4.999999999 \times 10^{99}$
tan $h^{-1}x$	$0 \leqq \lvert x \rvert \leqq 9.999999999 \times 10^{-1}$
$a^{**} \rightarrow x$	$0 \leqq \lvert x \rvert \leqq 9.999999999 \times 10^{9}$
$x \rightarrow a^{**}$	$x=0,\ 2.777777777 \times 10^{-99} \leqq \lvert x \rvert \leqq 9.999999999 \times 10^{9}$
DEG→RAD	$x=0,\ 5.729577951 \times 10^{-101} \leqq \lvert x \rvert \leqq 9.999999999 \times 10^{99}$
RAD→GRAD	$0 \leqq \lvert x \rvert \leqq 1.570796326 \times 10^{98}$
GRAD→DEG	$x=0,\ 1.111111111 \times 10^{-99} \leqq \lvert x \rvert \leqq 9.999999999 \times 10^{99}$
R→P (x, y→rθ)	$x=y \neq 0,\ \lvert x \rvert, \lvert y \rvert \leqq 9.999999999 \times 10^{49}$ * $(x^2+y^2) \leqq 9.999999999 \times 10^{99}$
P→R (rθ→x, y)	$0 \leqq r \leqq 9.999999999 \times 10^{99}$ **

* y/x must be in the range of $\tan^{-1} x$.
y/x muß im Bereich von $\tan^{-1} x$ liegen.
y/x doit se situer dans la plage de $\tan^{-1} x$.
y/x debe estar en el rango de $\tan^{-1} x$.
y/x deve essere compreso nella gamma $\tan^{-1} x$.

** θ must be in the range of sin x.
θ muß im Bereich von sin x liegen.
θ doit se situer dans la plage de sin x.
θ debe estar en el rango de sin x.
θ deve essere compreso nella gamma di sen x.

- Effective Accuracy: 10 digits ±1
  Effektive Genauigkeit: 10 Stellen ±1
  Précision effective: 10 chiffres ±1
  Precisión efectiva: 10 dígitos ±1
  Precisione effettiva: 10 cifre ±1

Function Funktion Fonction Funcion Funzione	Input Range Eingabebererich plage d'entree Rango de entrada Gamma d'impostazione
AND XNOR	BIN; $1000000000 \leqq x \leqq 1111111111$ $0 \leqq x \leqq$ 111111111 HEX; FDABF41 C01 $\leqq x \leqq$ FFFFFFFFFF $0 \leqq x \leqq$ 2540BE3FE
NOT	BIN; $1000000000 \leqq x \leqq 1111111111$ $0 \leqq x \leqq$ 1111111111 HEX; FDABF41C01 $\leqq x \leqq$ FFFFFFFFFF $0 \leqq x \leqq$ 2540BE3FE
NEG	BIN;$1000000001 \leqq x \leqq 1111111111$ $0 \leqq x \leqq$ 111111111 HEX; FDABF41C01 $\leqq x \leqq$ FFFFFFFFFF $0 \leqq x \leqq$ 2540BF3FF

$ax+by=d$ $ax+by+cz=d$ $ax^2+bx+c=0$	a. b. d : $x \leqq 999999$ a.b.c.d : $x \leqq 999999$ a. b. c : $x < 1 \times 10^{100}$

ENGLISH

III. Power source

Battery

Alkali manganese battery (Type: LR44 ×2): 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.

DEUTSCH

III. Stromversorgung

Batterie

Alkali-Mangan-Batterie (Typ: LR44 ×2): 12.000 Stunden bei täglichem Gebrauch von 2 Stunden

Bei Schwächerwerden der Anzeige die Batterie auswechseln.

* Aus der Reichweite von Kindern fernhalten. Falls ein Kind Batterie verschluckt, muß es sofort in ärztliche Behandlung gebracht werden.
* Die Batterie nicht nachzuladen oder zu zerlegen versuchen und jegliche Maßnahmen, die einen Kurzschluß verursachen könnten, unterlassen.
* Die Batterie nicht hohen Temperaturen oder offenen Flammen aussetzen.

FRANÇAIS

III. Alimentation

Pile

Pile alcali-manganèse (Type: LR44 ×2): 12.000 heures dans le cas d'une utilisation 2 heures par jour

Lorsque l'affichage faiblit, remplacer la pile.

* Ne pas laisser la pile à la portée des enfants. Consulter immédiatement un médecin si la pile est avalée.
* Ne pas tenter de recharger, démonter ou soumettre la pile à une opération pouvant caser un court-circuit.
* Ne pas exposer la pile à des températures élevées ni à des flammes.

ESPAÑOL

III. Alimentación

Batteria

Pila alcalina de manganeso (Tipo: LR44 ×2): 12.000 horas cuando se utilice 2 horas diarias

Cuando lo representado en la pantalla se vuelva difuso, reemplace la pila.

* Guarde la pila fuera del alcance de los niños. Póngase immediatamente en contacto con un médico si se traga la pila.
* No trate de cargar, desmontar o alterar la pila porque podría producirse un cortocircuito.
* No exponga la pila a altas temperaturas o a las llamas.

ITALIANO

III. Alimentazione

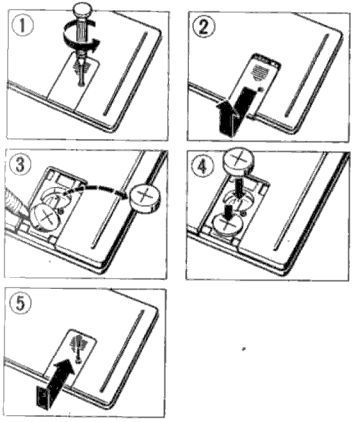
Pila

Batteria alcalina manganese (Tipo: LR44 ×2): 12.000 ore usandola 2 ore al giorno

Quando il visualizzatore si affievolisce, sostituire la batteria.

* Conservare la batteria fuori dalla portata dei bambini. Se un bambino dovesse ingoiare una batteria, rivolgersi immediatamente al medico.
* Non cercare di ricaricare, smontare o effettuare qualsiasi altra operazione che possa causare un cortocircuito.
* Non esporre la batteria ad alte temperature o al fuoco.

Battery Replacement
Austausch der Batterie
Remplacement des piles
Reemplazo de la pila
Sostituzione della batteria



ENGLISH

IV. 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.

DEUTSCH

IV. Hinweise und Vorsichtsmaßregeln

- Dieser Rechner besteht aus Präzisions-Bauteilen wie z.B. LSI-Chips und sollte nicht an Plätzen betrieben werden, wo er schnellen Temperaturänderungen, übermäßiger Feuchtigkeit, hohem Staub- oder Schmutzaufkommen oder direkter Sonnenbestrahlung ausgesetzt ist.
- Die Flüssigkristallanzeigeplatte besteht aus Glas und darf keinem übermäßigen Druck ausgesetzt werden.

- Zum Reinigen kein feuchtes Tuch und kein flüchtiges Mittel wie z.B. Lackverdünner verwenden. Nur mit einem weichen, trockenen Tuch reinigen.
- Dieses Gerät auf keinen Fall auseinanderbauen. Wenn Sie vermuten, daß der Rechner nicht richtig funktioniert, senden oder übergeben Sie ihn zusammen mit dem Garantieschein der Service-Vertretung einer Canon-Geschäftstelle.

FRANÇAIS

IV. Conseils et précautions

- Cette calculatrice renferme des composants électroniques de précision, tels que puces LSI, et elle ne doit pas être utilisée dans des endroits soumis à de brusques changements de température, à une humidité excessive, à de la saleté ou à de la poussière, ni exposée au rayonnement solaire direct.
- Le panneau d'affichage à cristaux liquides étant fait de verre, il ne doit pas être soumis à une pression excessive.
- Lors du nettoyage de la machine, ne pas utiliser de tissu humide ni de liquide volatil, tel que diluant. N'utiliser qu'un chiffon doux et sec.
- Cette machine ne doit en aucun cas être démontée. S'il est suspecté que la calculatrice ne fonctionne pas correctement, l'apporter ou l'expédier par poste au service après-vente Canon, accompagnée de sa garantie.

V. Specifications

Exponential Type ..... Mantissa, 10 digits+ exponent, 2 digits+ sign, 2 digits

Floating Type ..... Mantissa, 10 digits+ sign, 1 digit

Calculation Range:

Decimal ..... $\pm 1\times10^{-99}$ to $\pm 9.999999999\times10^{99}$

Binary ..... 1111111111 to 0 to 1000000000

Octal ..... 3777777777 to 0 to 4000000000

Hexadecimal ..... 2540BE3FF to 0 to FDABF41C01.

Power Source: DC 3 V 0.36 mW

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

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

Size: 71 mm (W)×135 mm (L)×9 mm (H) (2-25/32"×5-5/16"×11/32")

Weight: 82 g (2.9 oz.) with batteries

Subject to change without notice.

V. Technische Daten

Exponentielle Darstellung ..... 10-stellige Mantisse+ 2-stelliger Exponent+ 2-stelliges Zeichen

Fließkomma-Darstellung ..... 10-stellige Mantisse+ 1-stelliges Zeichen

Rechenbereich:

Dezimal ..... $\pm 1\times10^{-99}$ bis $\pm 9,999999999\times10^{99}$

Binär ..... 1111111111 bis 0 bis 1000000000

Oktal ..... 3777777777 bis 0 bis 4000000000

Hexadezimal ..... 2540BE3FF bis 0 bis FDABF41C01

Stromversorgung: Gleichstrom 3 V 0,36 mW

Zwei Alkali-Batterien (LR44): ca. 12.000 Stunden bei täglichem Gebrauch von 2 Stunden

Umgebungstemperatur: 0°C—40°C

Abmessungen: 71 mm (B)×135 mm (L)×9 mm (H)

Gewicht: 82 g mit Batterien

Änderungen vorbehalten.

V. Caratteristiche tecniche

Esponenziale..... Mantissa, 10 cifre+esponente, 2 cifre+segno, 2 cifre

Fluttuante:..... Mantissa, 10 cifre+segno, 1 cifra

Capacità di calcolo:

Decimale ..... da $\pm 1\times10^{-99}$ a $\pm 9{,}999999999\times10^{99}$

Binario ..... 11111111 a 0 a 1000000000

Ottale ..... da 3777777777 a 0 a 4000000000

Esadecimale ..... da 2540BE3FF a 0 a FDABF41C01

Alimentazione: DC 3 V, 0,36 mW

Batteria alcalina (LR44) ×2: Circa 12.000 ore usandola 2 ore al giorno

Temperatura d'esercizio: 0°C a 40°C (32°F a 104°F)

Dimensioni: 71 mm (Lar.)×135 mm (Lun.)×9 mm (Alt.)

Peso: 82 g batterie comprese

La caratteristiche sono soggette a cambiamenti senza preavviso.

Radio Interference Regulations

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques (de la classe B) prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

F-612

(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

Vfg. Nr. 1046/1984 u. Nr. 483/1986

(Amtsblattverfügung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Canon Inc.

Name des Herstellers/Importeurs

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