Mathematics Functions

The HP-12C calculator provides several basic mathematical and number alteration functions that are useful for specialized financial calculations as well as for general mathematics calculations:

Keys	Description
[1/X]	Calculates the reciprocal of the number in the display (stack-X).
[y^x]	Calculates the number in the stack-Y raised to the power of number in the display (stack-X).
[g] [x^2]	Calculates the square of the number in the display (stack-X). Available in the Platinum Model only.
[g] [√x]	Calculates the square root of the number in the display (stack-X).
[g] [LN]	Calculates the natural logarithm (base "**e**") of the number in the display (stack-X).
[g] [e^x]	Calculates the exponential of the number in the display (stack-X).
[g] [n!]	Calculates the factorial of the number in the display (stack-X).
[f] [RND]	Rounds the number in the display (stack-X) to the current number of decimals.
[g] [INTG]	Calculates the integer part of the number in the display (stack-X).
[g] [FRAC]	Calculates the fractional part of the number in the display (stack-X).

One Number Operations in RPN mode

All the functions that require one number only, are performed directly with the value in the stack-X register (displayed number). In **RPN** mode, the original value is saved in the Last-X register and the content of the stack-X is replaced with the function result.

Example: One Number Function

To perform an operation, follow the “keystrokes” sequence, the result will be in the stack-X and the original number in the Last-X register:

Operation	Keystrokes	Display (stack-X)	Last-X
1 / 0.23	“0.23” **[1/X]**	**4.35**	0.23
1.41^{2}	“1.41” **[g] [x^2]**	**1.99**	1.41
$\sqrt{2}$	“2” **[√x]**	**1.41**	2
LN(27)	“27” **[LN]**	**3.3**	27
$e^{3.3}$	“3.3” **[g] [e^x]**	**27.11**	3.3
5 !	“5” **[g] [n!]**	**120**	5

Example: Function [g] [INT] and [g] [FRAC]

Type the number 4.347826087” and get the integer and fractional parts:

Keystrokes	Display	Comment
Type “4.347826087”	4.347826087	Type the number.
[g] [INTG]	4	Calculate the integer part.
[f] [PREFIX]	“4000000000”	Display the 10-Digits mantissa.
[g] [LSTX]	4.35	Recovers the original number.
[g] [FRAC]	0.35	Calculate the fractional part
[f] [PREFIX]	“3478260870”	Display the 10-Digits mantissa.

Example: Function [f] [RND]
Type the number 4.347826087" and round it to 2 and 6 decimals:

Keystrokes	Display	Comment
Type "4.347826087"	4.347826087	Type the number.
[f] [2]	4.35	Set to show 2 decimals in the display.
[f] [PREFIX]	"4347826087"	Display the 10-Digits mantissa.
[f] [RND]	4.35	Rounds the number to 2 decimals.
[f] [PREFIX]	"4350000000"	Display the 10-Digits mantissa.
[g] [LSTX]	4.35	Recovers the original number.
[f] [6]	4.347826	Set to show 6 decimals in the display.
[f] [RND]	4.347826	Rounds the number to 6 decimals.
[f] [PREFIX]	"4347826000"	Display the 10-Digits mantissa.

One Number Operations in ALG mode

The functions that require one number only, are performed in the same way described above except that the Last-X value remains unchanged. So, in the examples, you can't use [g] [LSTx] to recall the original value of stack-X, instead you should enter the original number again.

Two Number Operations [+], [-], [x], [÷] and [y^x]

All the operations that requires two numbers, are performed considering the number in the stack-Y as the first number, and the number in stack-X as the second number, the stack drops, and the content of the stack-X is replaced with the operation result (in RPN mode, the original value in the stack-X is saved in Last-X register).

Example: Power Operation [y^x]

Calculate the value $2^{1.4}$, $2^{-1.4}$, -2^3 and $2^{1/3}$:

In **RPN mode** follow the next sequence:

Operation	Keystrokes	Result
$2^{1.4}$	“2” **[ENTER]** ”1.4” **[y^x]**	2.64
$2^{-1.4}$	“2” **[ENTER]** ”1.4” **[CHS] [y^x]**	0.38
-2^3	“2” **[CHS] [ENTER]** ”3” **[y^x]**	-8
$2^{1/3}$	“2” **[ENTER]** ”3” **[1/X] [y^x]**	1.26

In **ALG mode** follow the next sequence:

Operation	Keystrokes	Result
$2^{1.4}$	“2” **[y^x]** ”1.4” **[=]**	2.64
$2^{-1.4}$	“2” **[y^x]** ”1.4” **[CHS] [=]**	0.38
-2^3	“2” **[CHS] [y^x]** ”3” **[=]**	-8
$2^{1/3}$	“2” **[y^x]** ”3” **[1/X] [=]**	1.26