

# One-Argument Math Functions

The RLM-11CX calculator provides a complete set of single argument functions commonly found in any scientific calculator. Each time one of this functions is applied the following actions are performed:

- The function use the displayed number (stack-X) as the argument.
- The displayed number in stack-X is replaced with the result of the function.
- The original value in stack-X (argument of the function) is stored in the Last-X.
- The Stack is set to lift if a new number is entered.
- Values in stacks Y, Z, and T registers are not affected.

Following is a description and examples of all of the one-argument functions. For convenience and easy reading, the functions are grouped in different categories.

## General Functions

Keys	Description
$[\sqrt{x}]$	Calculates the square root of the number in the stack-X.
$[g] [x^2]$	Calculates the square of the number in the stack-X.
$[1/x]$	Calculates the reciprocal of the number in the stack-X.
$[f] [x!]$	Calculates the factorial or gamma function of the number in the stack-X.

Examples (assumes FIX mode with 4 decimals)

Operation	Keystrokes	Display (stack-X)	Last-X
1 / 0.23	“0.23” $[1/X]$	<b>4.3478</b>	0.2300
1.41 <sup>2</sup>	“1.41” $[g] [x^2]$	<b>1.9881</b>	1.4100
$\sqrt{2}$	“2” $[\sqrt{x}]$	<b>1.4142</b>	2.0000
$\Gamma(\pi)$	$[f] [\pi]$ “1” $[-] [f] [x!]$	<b>2.2880</b>	2.1416

## Logarithmic Functions

Keys	Description
<b>[e<sup>x</sup>]</b>	Calculates the natural anti-logarithm of the number in the stack-X.
<b>[g] [LN]</b>	Calculates the natural logarithm of the number in the stack-X.
<b>[10<sup>x</sup>]</b>	Calculates the common anti-logarithm of the number in the stack-X.
<b>[g] [LOG]</b>	Calculates the common logarithm of the number in the stack-X.

Examples (assumes FIX mode with 4 decimals)

Operation	Keystrokes	Display (stack-X)	Last-X
ALn(0.23)	“0.23” <b>[e<sup>x</sup>]</b>	<b>1.2586</b>	0.2300
Ln(4.5)	“4.5” <b>[g] [LN]</b>	<b>1.5041</b>	4.5000
ALog(-0.4)	“0.4” <b>[CHS] [10<sup>x</sup>]</b>	<b>0.3981</b>	-0.4000
Log(3.545)	“3.545” <b>[g] [LOG]</b>	<b>0.5496</b>	3.5450

## Trigonometric Functions

Keys	Description
<b>[SIN]</b>	Calculates the Sine of the number in the stack-X.
<b>[COS]</b>	Calculates the Cosine of the number in the stack-X.
<b>[TAN]</b>	Calculates the Tangent of the number in the stack-X.
<b>[g] [SIN<sup>-1</sup>]</b>	Calculates the Inverse Sine of the number in the stack-X.
<b>[g] [COS<sup>-1</sup>]</b>	Calculates the Inverse Cosine of the number in the stack-X.
<b>[g] [TAN<sup>-1</sup>]</b>	Calculates the Inverse Tangent of the number in the stack-X.

Examples (assumes FIX mode with 4 decimals)

Operation	Keystrokes	Display (stack-X)	Last-X
Sin(23°)	<b>[g][DEG]</b> “23” <b>[SIN]</b>	<b>0.3907</b>	23.0000
Asin(-0.34)	“0.34” <b>[CHS] [g] [SIN<sup>-1</sup>]</b>	<b>-19.8769</b> (deg)	-0.3400
Cos( $\pi/4$ rad)	<b>[g][RAD] [f] [<math>\pi</math>]</b> “4” <b>[÷] [COS]</b>	<b>0.7071</b>	0.7854
Acos(0.545)	“0.545” <b>[g] [COS<sup>-1</sup>]</b>	<b>0.9944</b> (rad)	0.5450
Tan(120 grad)	<b>[g][GRD]</b> “120” <b>[TAN]</b>	<b>-3.0777</b>	120.0000
Atan(2.25)	“2.25” <b>[g] [TAN<sup>-1</sup>]</b>	<b>73.3750</b> (grad)	2.2500

## Hyperbolic Functions

Keys	Description
<b>[f] [HYP] [SIN]</b>	Calculates the Hyperbolic Sine of the number in the stack-X.
<b>[f] [HYP] [COS]</b>	Calculates the Hyperbolic Cosine of the number in the stack-X.
<b>[f] [HYP] [TAN]</b>	Calculates the Hyperbolic Tangent of the number in the stack-X.
<b>[g] [HYP<sup>-1</sup>] [SIN]</b>	Calculates the Inverse Hyperbolic Sine of the number in the stack-X.
<b>[g] [HYP<sup>-1</sup>] [COS]</b>	Calculates the Inverse Hyperbolic Cosine of the number in the stack-X.
<b>[g] [HYP<sup>-1</sup>] [TAN]</b>	Calculates the Inverse Hyperbolic Tangent of the number in the stack-X.

Examples (assumes FIX mode with 4 decimals)

Operation	Keystrokes	Display (stack-X)	Last-X
Sinh(2.3)	“2.3” <b>[f] [HYP] [SIN]</b>	<b>4.9370</b>	2.3000
Cosh(2.3)	“2.3” <b>[f] [HYP] [COS]</b>	<b>5.0372</b>	2.3000
Tanh(2.3)	“2.3” <b>[f] [HYP] [TAN]</b>	<b>0.9801</b>	2.3000
Asinh(0.5)	“0.5” <b>[g] [HYP<sup>-1</sup>] [SIN]</b>	<b>0.4812</b>	0.5000
Acosh(1.5)	“1.5” <b>[g] [HYP<sup>-1</sup>] [COS]</b>	<b>0.9624</b>	1.5000
Atanh(0.5)	“0.5” <b>[g] [HYP<sup>-1</sup>] [TAN]</b>	<b>0.5493</b>	0.5000

## Conversion Functions

Keys	Description
<b>[f] [→H.MS]</b>	Converts fractional hours in stack-X to Hour-Minutes-Second format showing in the display the result in the 'H.MMSSdd' form.
<b>[g] [→H]</b>	Convert the stack-X number from 'H.MMSSdd' form to fractional hours.
<b>[f] [→RAD]</b>	Convert the stack-X value from Degrees to Radians.
<b>[g] [→DEG]</b>	Convert the stack-X value from Radians to Degrees.

Examples (assumes FIX mode with 4 decimals)

Operation	Keystrokes	Display (stack-X)	Last-X
12.5125 to H:M:S	“12.5125” <b>[f] [→H.MS]</b>	<b>12.3045</b>	12.5125
12:30:45 to Hour	“12.3045” <b>[g] [→H]</b>	<b>12.5125</b>	12.3045
$\pi/4$ rad to deg	<b>[f] [π] “4” [÷] [g] [→DEG]</b>	<b>45.0000</b>	0.7854
33.3 deg to rad	“33.3” <b>[f] [→RAD]</b>	<b>0.5812</b>	33.3

## Number Alteration Functions

Keys	Description
<b>[g][ABS]</b>	Calculates the absolute value of the number in the stack-X.
<b>[g] [INT]</b>	Calculates the integer part of the number in the stack-X.
<b>[f] [FRAC]</b>	Calculates the fractional part of the number in the stack-X.
<b>[g] [RND]</b>	Rounds the number in the stack-X to the current number of decimals.

Examples (assumes FIX mode with 4 decimals)

Operation	Keystrokes	Display (stack-X)	Last-X
ABS(-4.13)	“4.13” <b>[CHS] [g][ABS]</b>	<b>4.1300</b>	-4.1300
INT( $\pi$ )	<b>[f] [<math>\pi</math>] [g] [INT]</b> <b>[f] [PREFIX]</b>	<b>3.00</b> <b>3000000000</b>	3.1416
FRAC( $\pi$ )	<b>[f] [<math>\pi</math>] [f] [FRAC]</b> <b>[f] [PREFIX]</b>	<b>0.1416</b> <b>1415926536</b>	3.1416
RND( $\pi$ )	<b>[f] [<math>\pi</math>] [g] [RND]</b> <b>[f] [PREFIX]</b>	<b>3.1416</b> <b>3141600000</b>	3.1416

**As a special feature, the RLM-11CX calculator includes a tool for calculating with Complex Numbers. To show it, press the **OPT** key, and in the section “1) Scientific:” touch the “Complex Math” button.**