



**Roberto Panetta**



**Tension Software**



# Calcline 4.5

## User Guide

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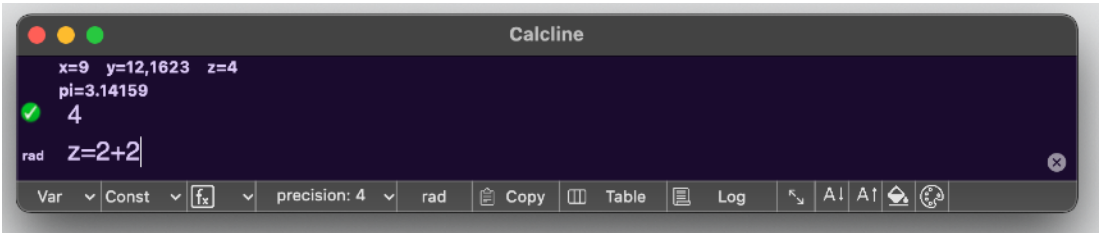
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# Welcome to Calcline

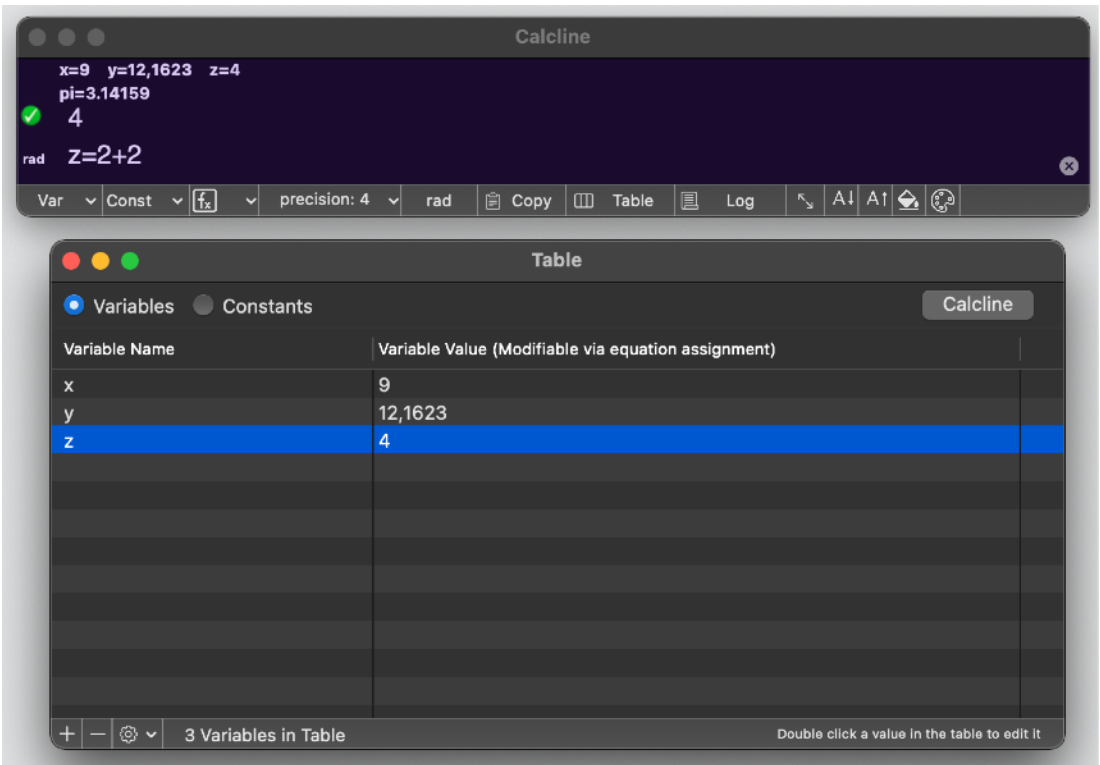
## Calcline

Calcline is an application to solve simple math calculations and algebraic expressions

It is a small strip window that you can use occupying just a small portion of the screen



You can also open an additional table view where you can see the value of variables and constants you can use in calculations



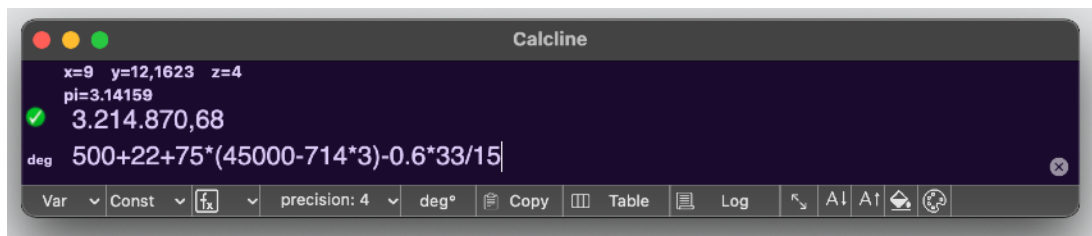
# Getting Started with Calcline

## Getting Started

Just launch Calcline and insert the algebraic expression to solve, as example:

$500+22+75*(45000-714*3)-0.6*33/15$

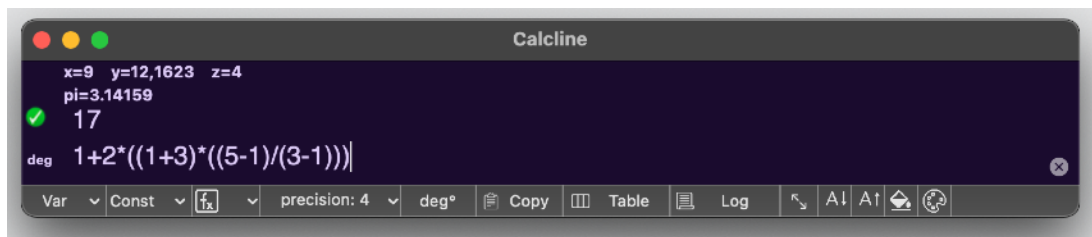
Type return and the result is shown.



You can also use nested parenthesis such as:

$1+2*((1+3)*((5-1)/(3-1)))$

in case parenthesis doesn't much, try it inserting an additional parentheses, Calcline signals the error.



You can also use function as in:

$\text{sqrt}(4)+1$

Press result and Calcline will display the result as 3 calculating the square root of 4 and adding it to 1

Calcline can be used from within other applications as a service. If Calcline is installed on your Mac, the service will be automatically available inside all the other applications.

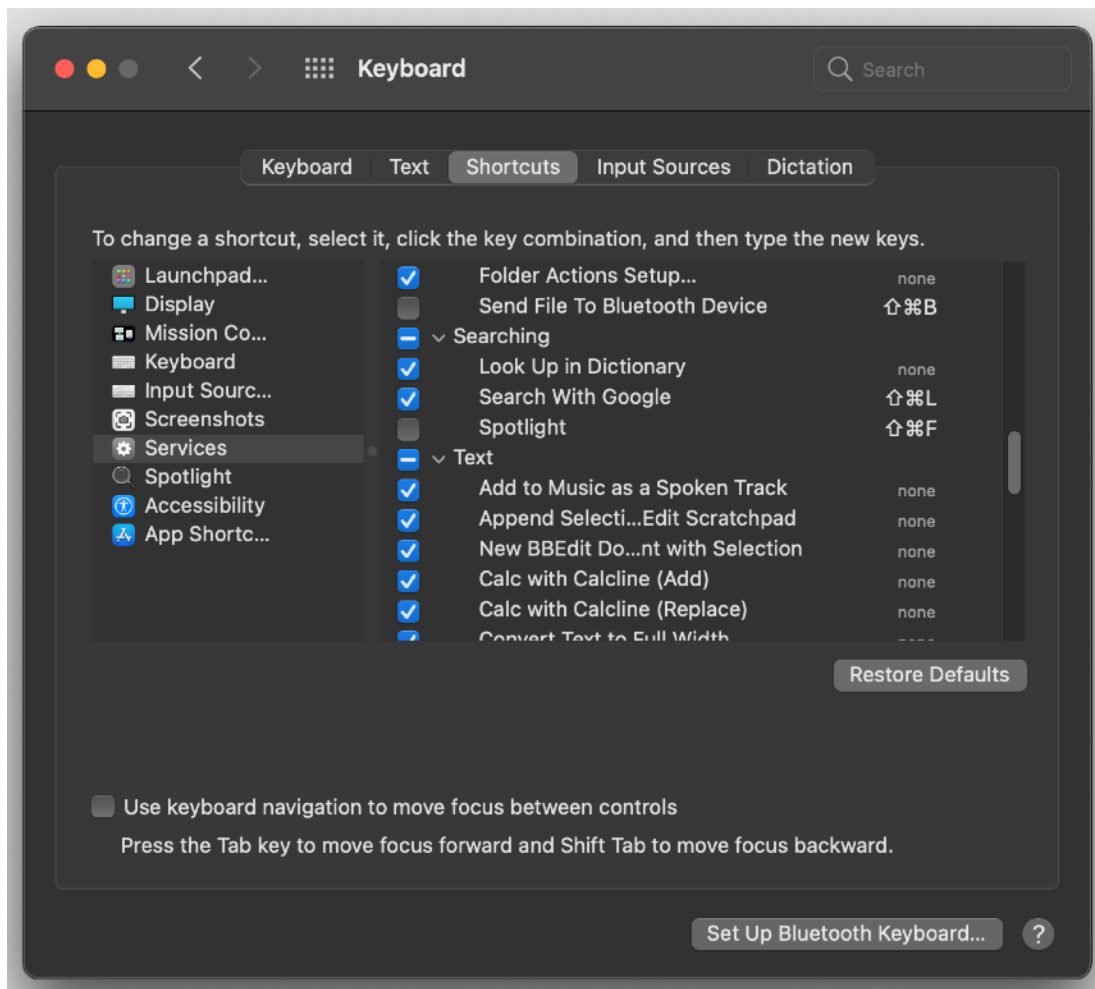
(You need to enable the service in the System Preferences > Keyboard > Shortcut > Services )

In detail you need to enable

Calc with Calcline (add)

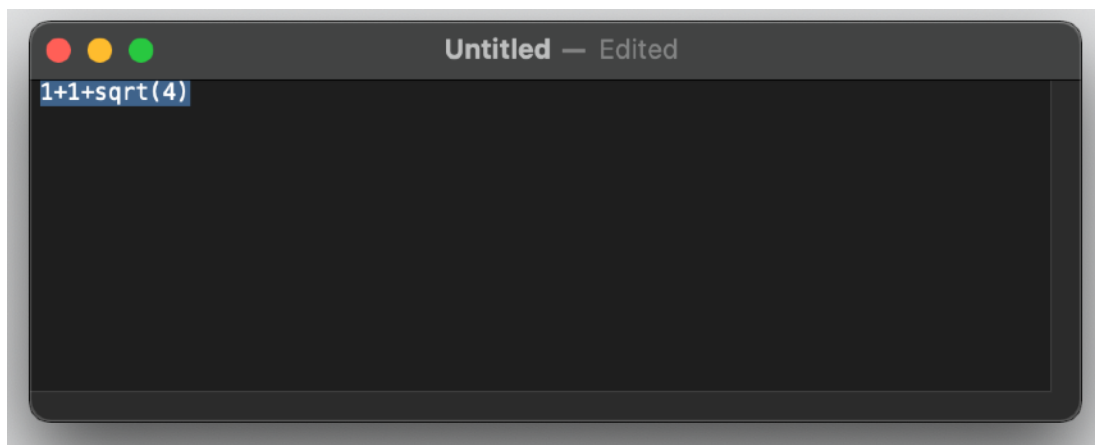
Calc with Calcline (Replace)

See the images below for more info

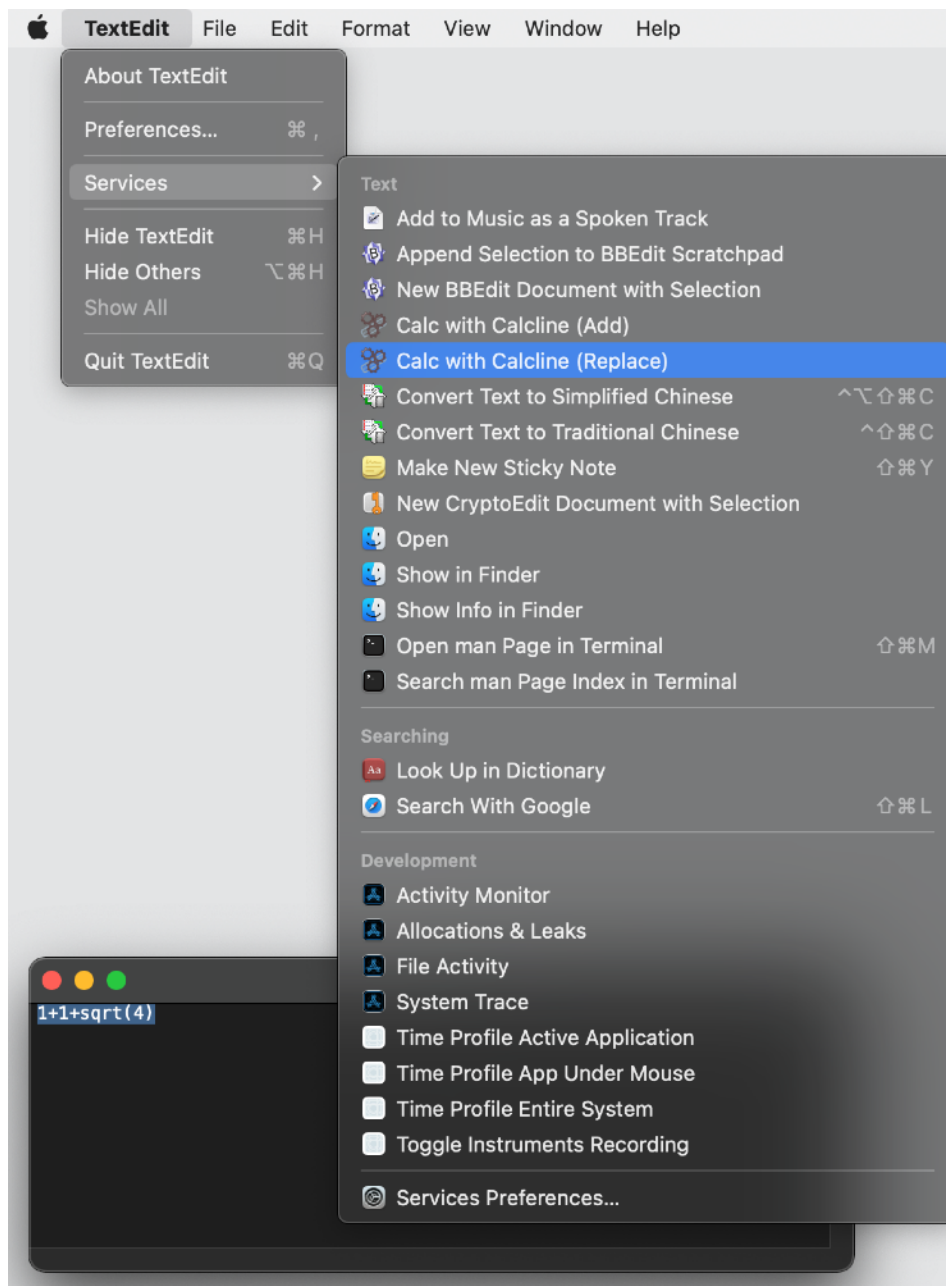


After enabling it you will have these services in all applications on your Mac

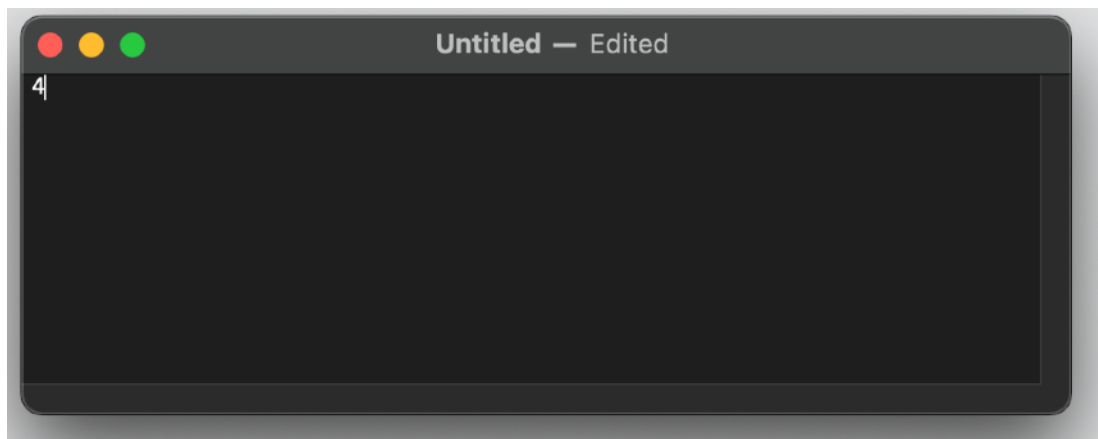
Type a calculation formula inside any application, a text editor or others,



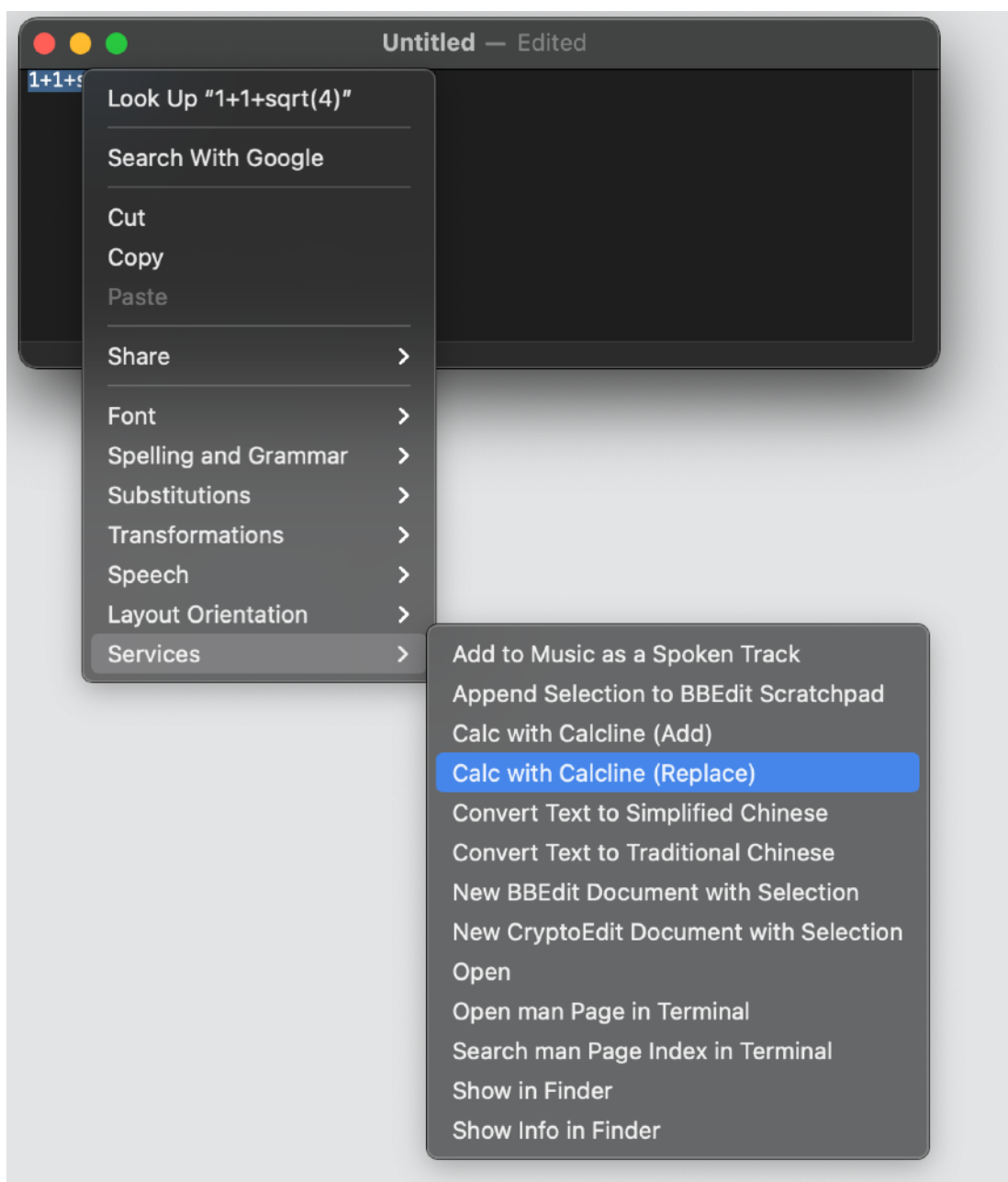
select it and choose 'Calc with Calcline' from the 'Services' submenu under the application menu, as example if you are using 'TextEdit' it will be under the 'TextEdit' menu.



The selection will be replaced by the result.  
The calculation is performed in background by Calcline providing the result directly to the current running application.  
Installing Calcline on your Mac, you will have its mathematical power inside any application.



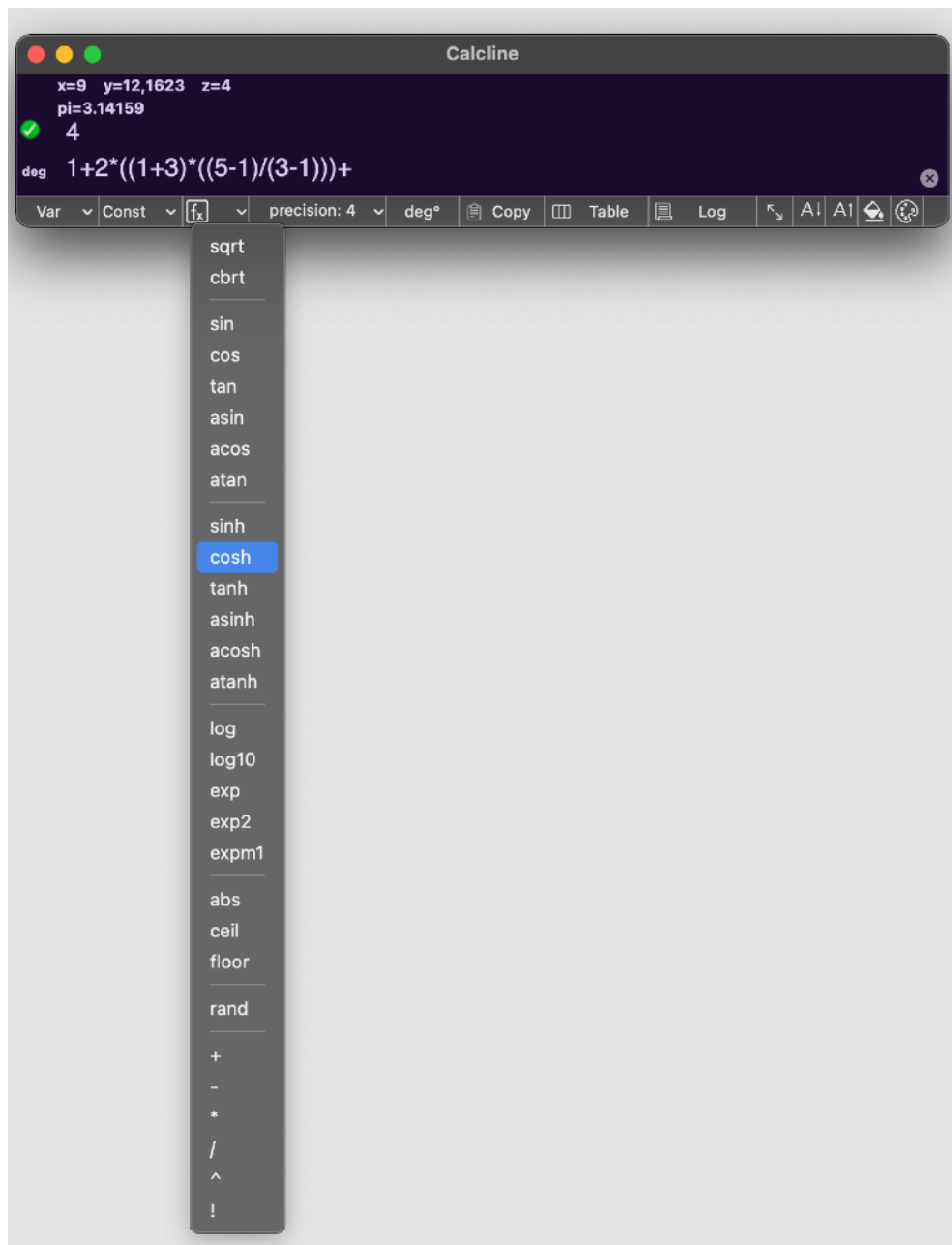
You can invoke the services also selecting the text and using a contextual menu



## Over 28 Functions and Operators

See the full list in the [Function Section](#).

You can insert mathematical function using the “Paste Function” Submenu under the “Edit” menu or using the function popup above the input field.



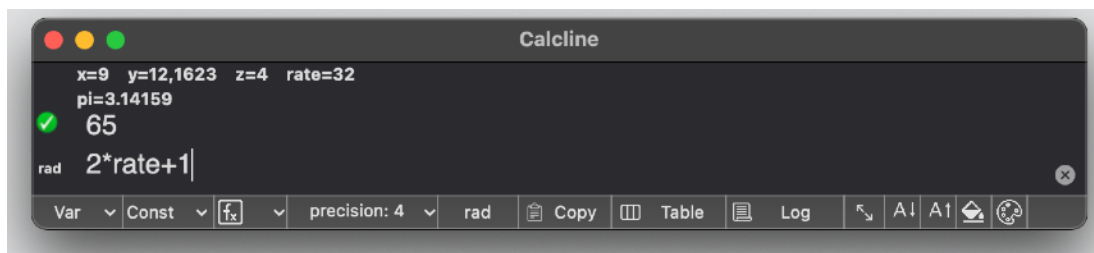
## Using Variables

You can use alphanumeric names in your equation and have Calcline manages them.

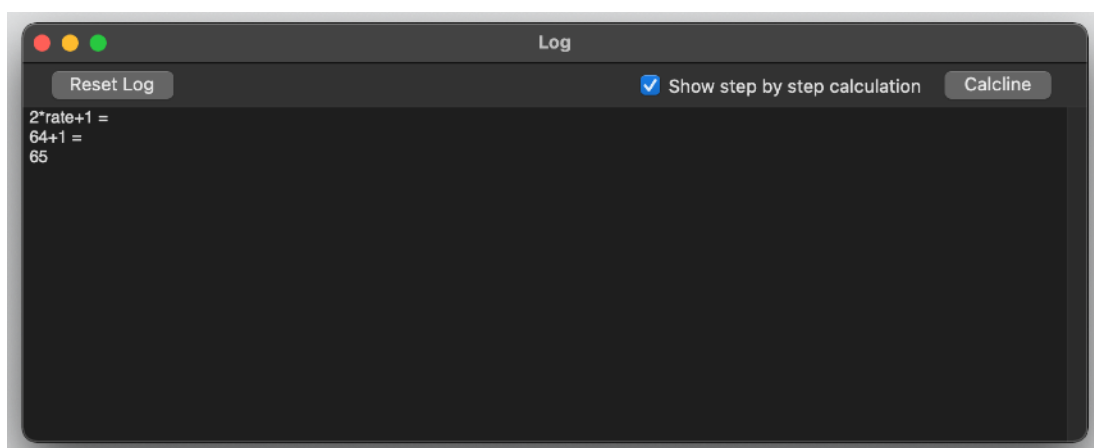
Assuming you assigned value of 0.32 to the variable named 'rate', inserting it directly in the table creating a new variable and double clicking it to edit it.

| Variable Name | Variable Value (Modifiable via equation assignment) |
|---------------|-----------------------------------------------------|
| x             | 9                                                   |
| y             | 12,1623                                             |
| z             | 4                                                   |
| rate          | 32                                                  |

then inside the Calcline window  
typing '100\*rate'  
will obtain 3200



and you can see in the log, if you open it, the passages made for the calculation.

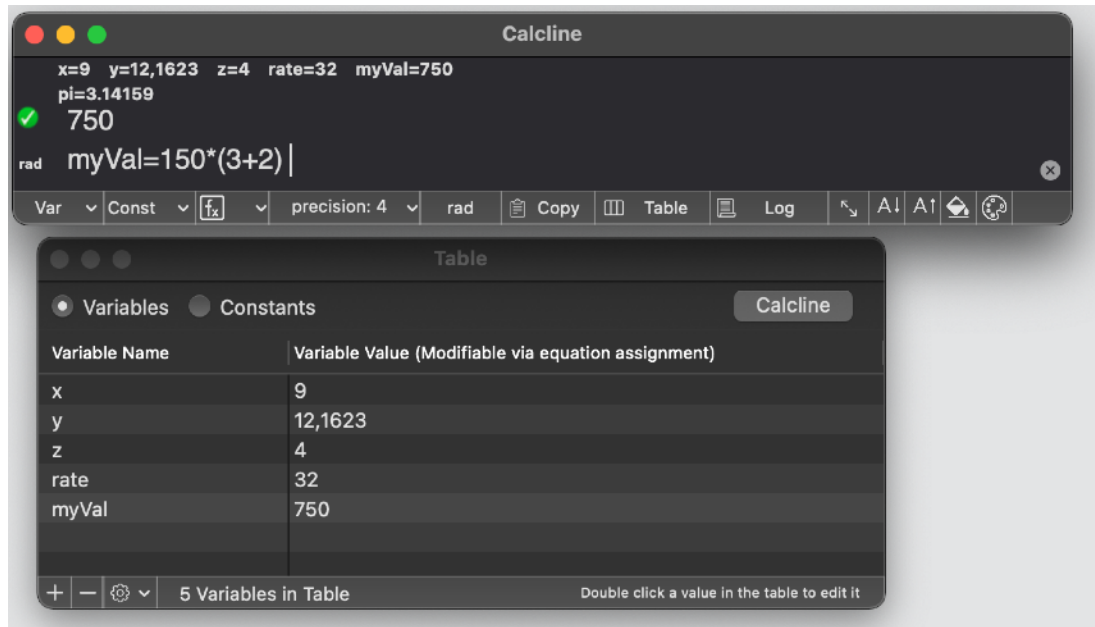


You can add, modify and remove variables in the drawer in two ways:  
Using the buttons to add and remove variables and double clicking in the table and editing directly inside the table

or...

You can insert an equation specifying the left value as:  
`myVal=150*(3+2)`

Calcline will create automatically the value 'myVal' in the variables table assigning to it the right value and you can use the variable length in successive expressions.



If you assign again a value to 'myVal', Calcline will update the value in the table. The general rules are:

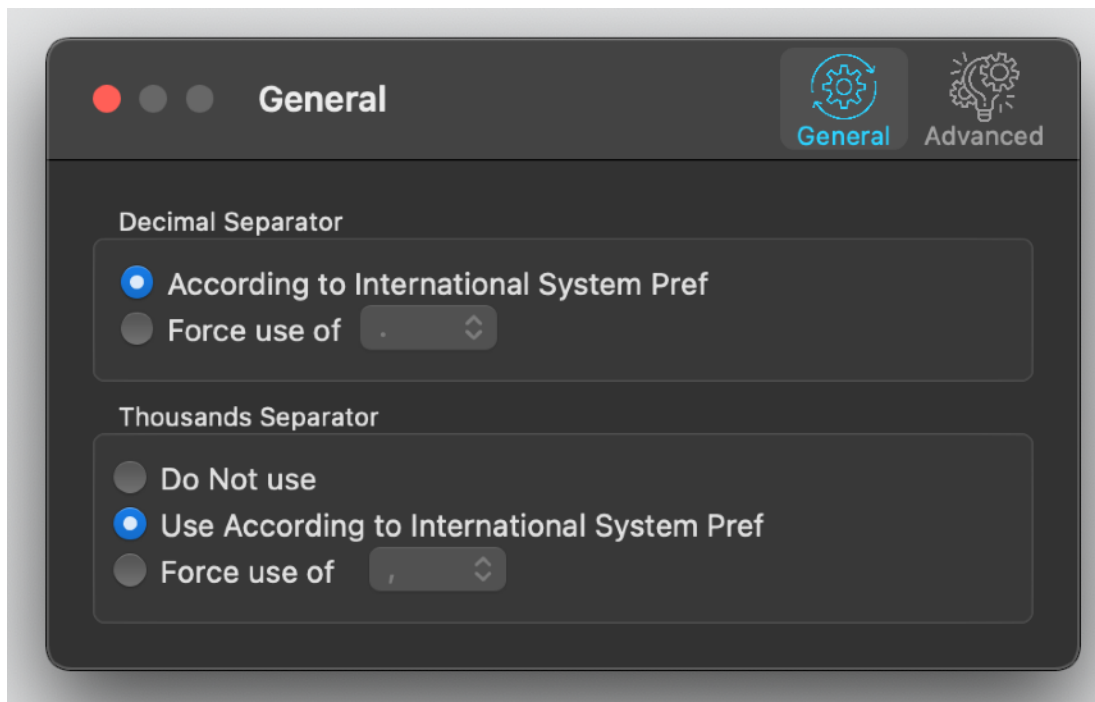
- If you use a name as left value not yet in the table, Calcline will add it, if you use a variable name already in the table Calcline will update it with the new value.
- After a variable name is in the table, you can use it in the right part of the equation.
- If you try to use a variable name not present yet in the table you will get an error.
- If you try to use a function name as a variable in the left value you will get an error.
- If you try to use a variable with a misspelled name you will get an error

## Formatting

Output format can be customised selecting "Preferences" under the "Calcline" menu.

It is possible to use for format number the USA style (1000000.245) or (1,000,000.245) with thousand separator or the one used in other countries (1000000,245) or (1.000.000,245) with thousand separator.

You can select the decimal precision and to optionally have numbers zero-filled up to the selected decimal precision.



You can select to show steps to accomplish calculation or not.

View the **Calcline Reference** section for all the info on preferences.

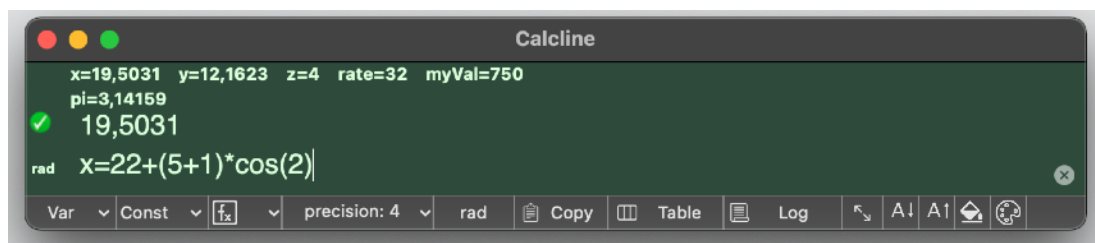
# Calcline Reference

## About Calcline

Calcline is a math and algebraic calculator for Mac OS X.  
It uses a calculation engine entirely developed by Tension Software.  
Calcline can manage both mathematical expression typed simply as:

1+1  
or  
 $22+(5+1)*\cos(2)$

or with a left and a right value as:  
 $x=22+(5+1)*\cos(2)$



In the first case Calcline will act as a simple calculator displaying the result.  
In the second case Calcline can solve the expression and assign to "x" the correct value adding "x" to the variable tables of Calcline.

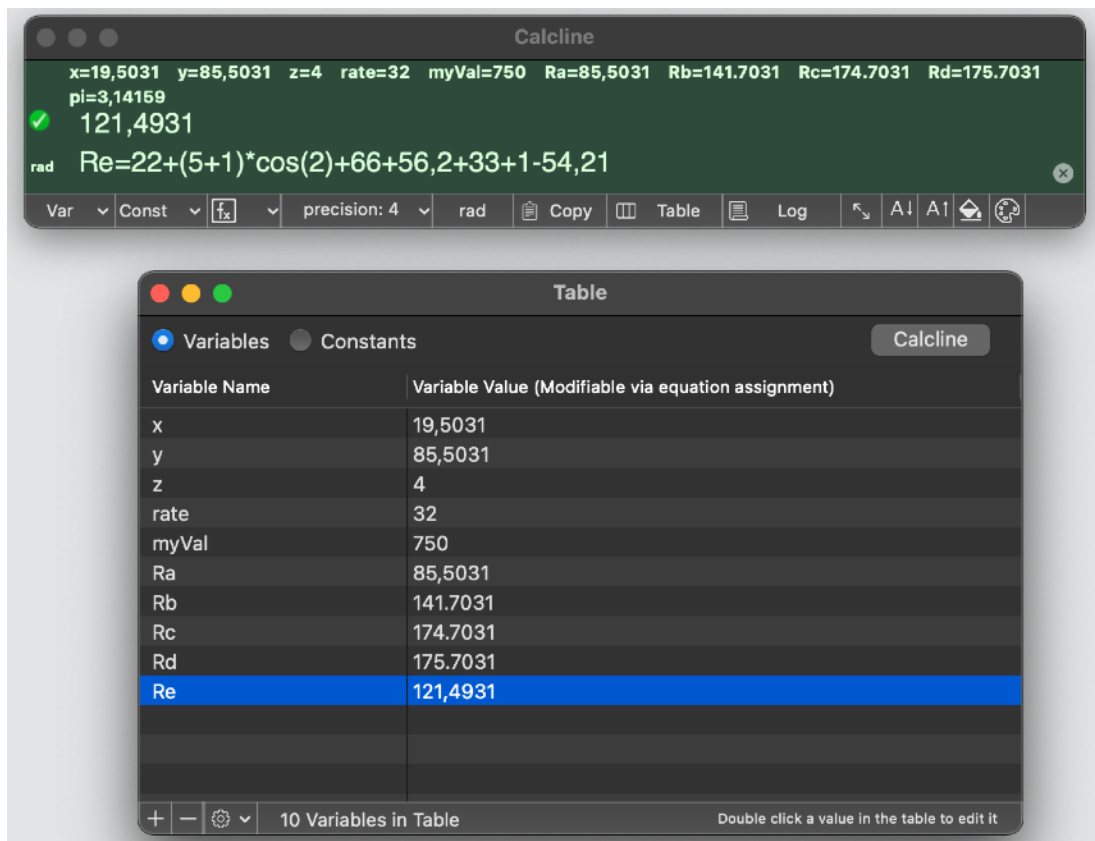
The variable table is a list of variables with an assigned value.

Calcline manages the variable table adding and updating new values as they are assigned via the input line.

The 'Table' window shows variables and constants in a two separate tables  
The user can change the content of the tables (variables and constant name and their value) clicking the table button

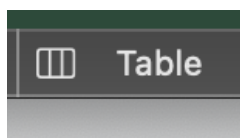
You can edit directly the variable value clicking directly on the table

When in the expanded form, the Calcline will display the value of variables in a compact form as they are in the table.



In the 'Calcline' window the variables and constants area can scroll to accommodate values that don't fit inside the window

At any moment the user can open to the extended 'Table' window form clicking the Table button at the bottom of the Calcline window



The dedicated Table window can be enlarged to the full screen area to add and edit many variables in a easy way.  
Dimension and position of the window are remembered over successive launches of the app.  
When you relaunch Calcline you will find it in the state you left it.

## Using Calcline

To correctly use Calcline you just to know a bit of mathematic (basic principles) and just few more specific rules (very general).  
In an expression with the '=' sign, you have the left value and the right value.  
In Calcline an equation is an assignment of the value of the right part to the left part.

In that way inserting

$x=2+2$

and pressing return

means: assign to the variable named "x" the value of 2+2 (which is 4).

Now if you type

$x+1$

and press return, the value of 5 will be displayed (Calcline picks up the value of 4 from the var table that is assigned to x)

You can omit the left value and the equal sign, in that way you specify that you want to just display the result without assigning the result to any variable.

In case you type an expression with a left value with a variable already in the table, its value will be update in accordance with the result of the expression.

As an example inserting

$x=101-2$

and pressing return , will assign to x (previous value of x was 4) the new value 99

Now inserting the new expression  $x+1$  and pressing return will show the value of 100 (the new value of x is used)

Left values must be choose with few rules in mind:

It must be an alphanumeric value starting with a letter, as example 'Ada' or 'Ada22' but not '22Ada' or '22'

It must be a single word, as example 'AsaRep' but not 'Asa Rep'

It can't be a function name, as example it can't be 'sin'

It can't contains reserved characters except standard alphabet letters and numbers, as example it can't be 'Sep\*' or 'fea#'

They are case sensitive, as example 'Pai7' is different from 'pai7'

You can add and change value in the variable table by typing directly inside the table

Evaluation of the right value, the expression, follows general mathematical rules:

Precedence operator are respected as usually in mathematics in this order:

Functions.

Factorial operator !

Operator ^ power.

Operator \* and /

Last to be evaluated are + and -

Obviously parenthesis are used in the standard way to change evaluation precedence

In that way

$2*3+1$  is equal to 7

and

$2*(3+1)$  is equal to 8

just because what is inside the parenthesis is evaluated first.

These are not a Calcline standards,they are mathematical standards and Calcline just uses them.

Constant value are provided by Calcline directly by default, such as

Pi= 3.141592653589793

e=2.718281828459045

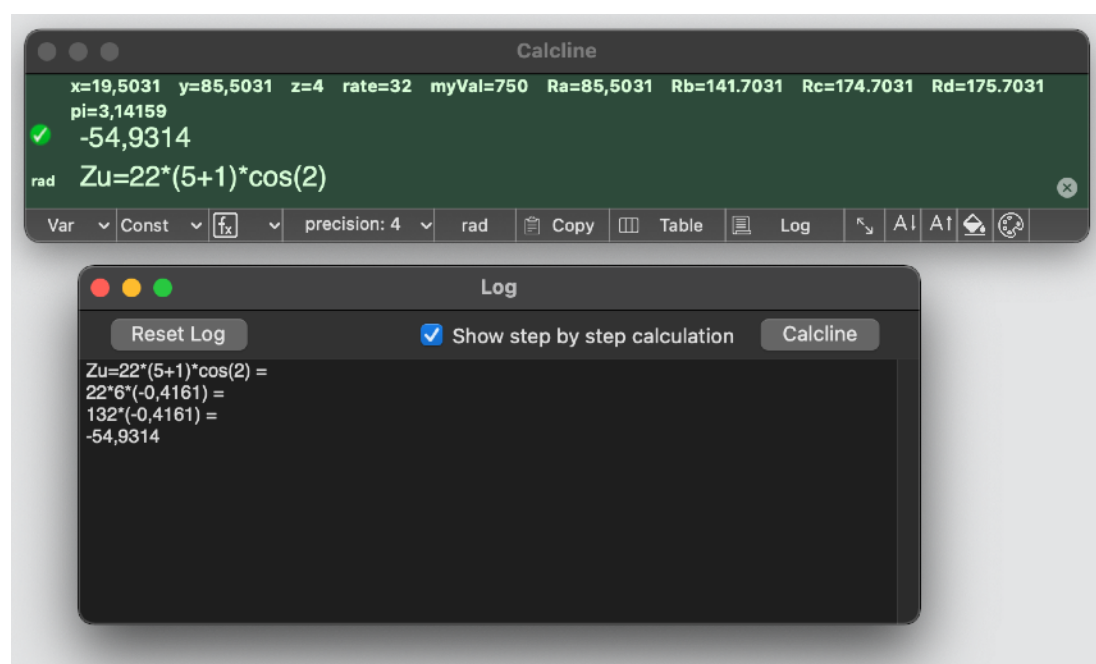
phi=1.618033988749894

If you need to use other constants introduce them as constant in the constant table.

As an example if you need constant K22 as 78.123456 just insert K22 and 78.123456 as value in the Constants table  
 From now you can use the constant K22 in your successive expression.  
 You can't change its value via an assignment, as example inserting  $k22=1+1$  in the formula field because you specified k22 as a constant

You can do it only for what you inserted in variables.  
 That is the difference between variable and constant, you can use both for calculation but you can't use a constant as left value.  
 The only way to change the value of a constant is to type its new value in the constant table.

Calcline can show in the log area every single step made to solve your algebraic expression. In that way you can check the precedence rules and the result is a lot more understandable. You can copy from the board selecting the text with the mouse.



At any moment you can insert an expression in the input field and have it solved.  
 The operator to indicate decimal position, in the input field can be both comma or dot, considering in the world both are used it was possible to enable both without trouble, simply use the one you prefer.

DO NOT use comma or dot as thousand separator in the input field or in the table.  
 You can insert value as 1000000,235 or 1000000.235 and Calcline will recognize it always as 1000000(decimal point)235 regardless of your international setting, but never use thousand separator in input phase.

Values in the var table are reported always without thousand separators to allow them to be edited easily.

You can use in calculation radians (the constant pi can help at this) or degree to make trigonometric calculation, a label button in Calcline make you switch the adopted convention at any moment just because both can be useful. Click the label to switch from radians to degree and back.

Preferences allow to customize the way output is performed.

To open preferences select "Preferences" from the "Calcline" menu.

See the Preferences paragraph for further details

## Functions and Operators

To use a function in Calcline simply use the name of the function followed by the argument/arguments enclosed between parenthesis.

Example:  $\sin(0.12)$

where `sin` is the function and `0.12` the argument.

Function can be used inside a normal calculation as :

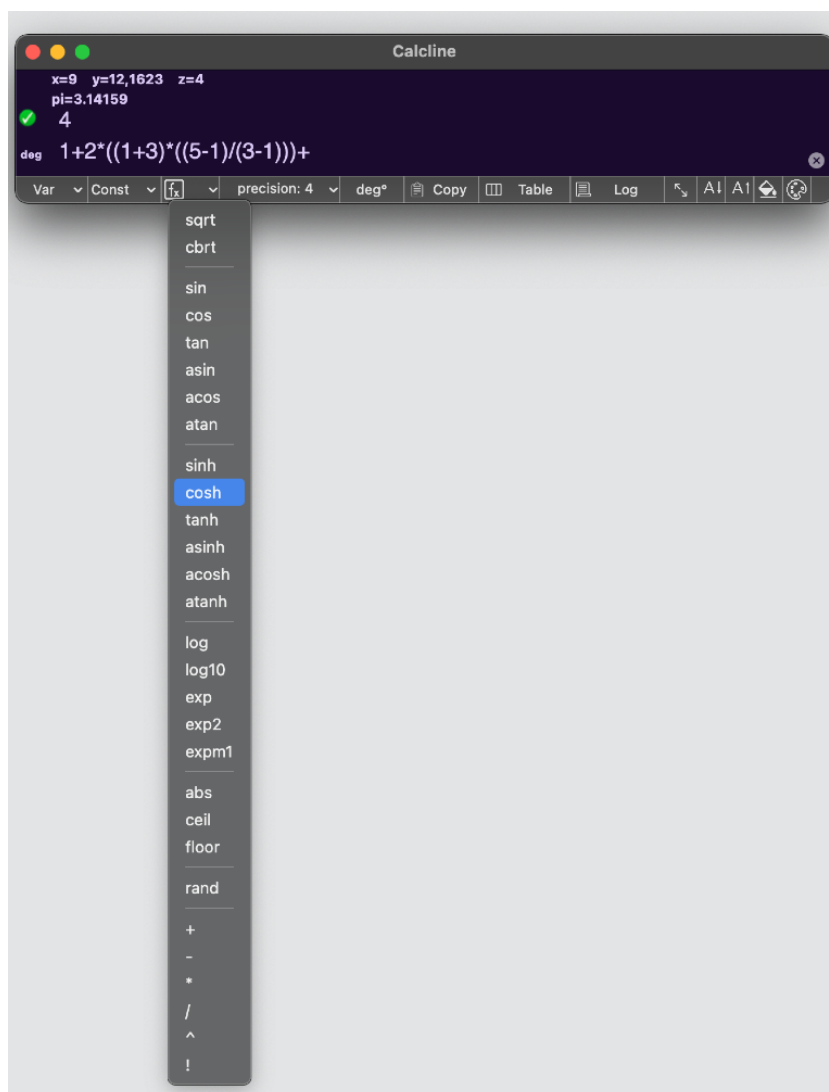
Example:  $(\sin(0.12)+0.03)*2.43$

Function can be nested as:

$\sin(\cos(\sqrt{1.456}))$

See below the full list of the functions available in Calcline and click the name function to have further help.

To insert a function in Calcline you can also use the "Paste Function" submenu under "Edit" or the popup *f* menu in the Calcline window.



The following rules are used in pasting the function:

After inserting a function using the popup *f* menu, the cursor is positioned inside the parenthesis ready to type the function argument.

If the popup *f* is used when a selection is active inside the input field, the selection is used as argument of the function selected

#### List of Available functions and operators:

sqrt(x)

cbrt(x)

---

sin(x)

cos(x)

tan(x)

asin(x)

acos(x)

atan(x)

---

sinh(x)

cosh(x)

tanh(x)

asinh(x)

acosh(x)

atanh(x)

---

log(x)

log10(x)

exp(x)

exp2(x)

expm1

---

abs(x)

ceil(x)

floor(x)

—

rand(x)

—

+

-

\*

/

^

!

To read more about the functions available see the 'Function Appendix' details

## Variable Use as right value

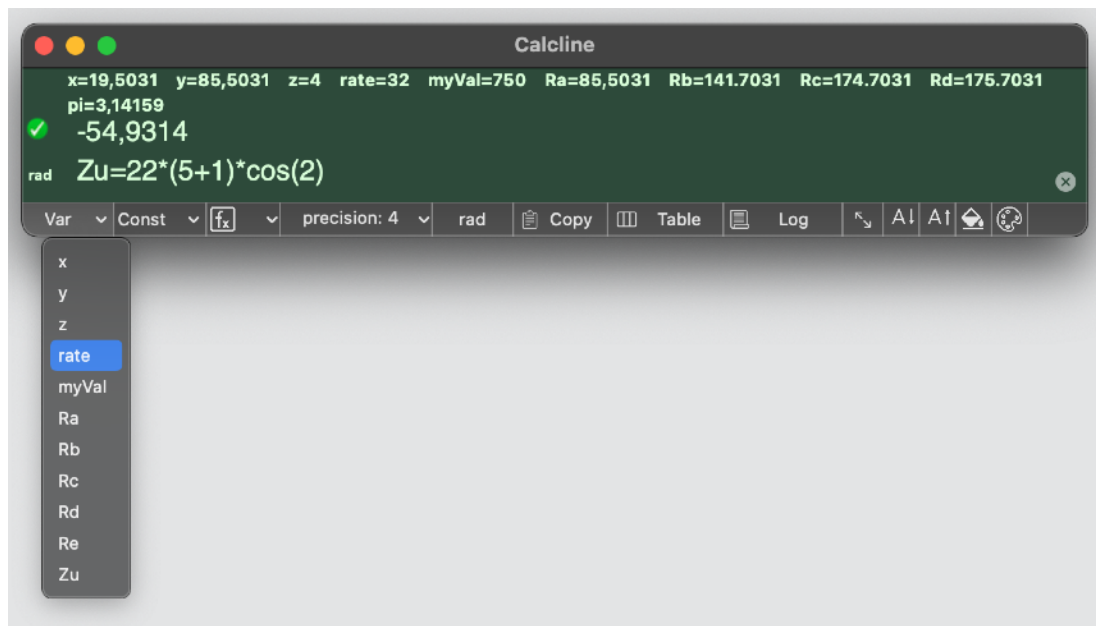
You can use variables available in the variable table as right value of algebraic expression. During evaluation of the expression the value will be picked up from the table and used for calculation

As example if you write  $y=x+1$

the value of  $x$  inside the variable table will be used for calculation

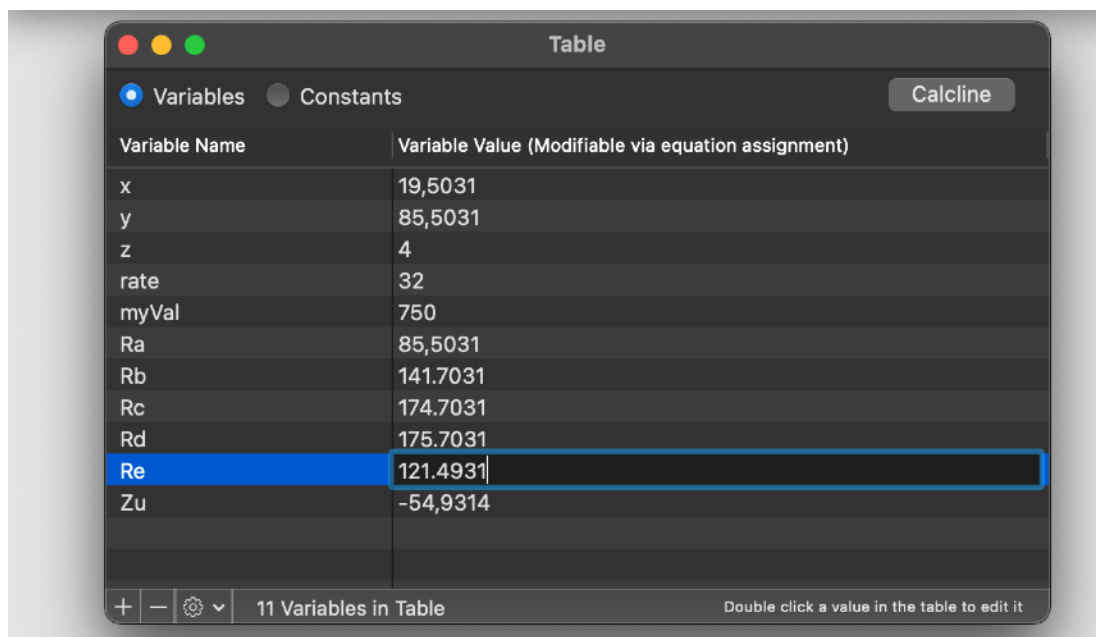
To copy and paste variable name from the table inside the input field you can use the variable popup to avoid errors

To enable it the cursor must be inside the input field

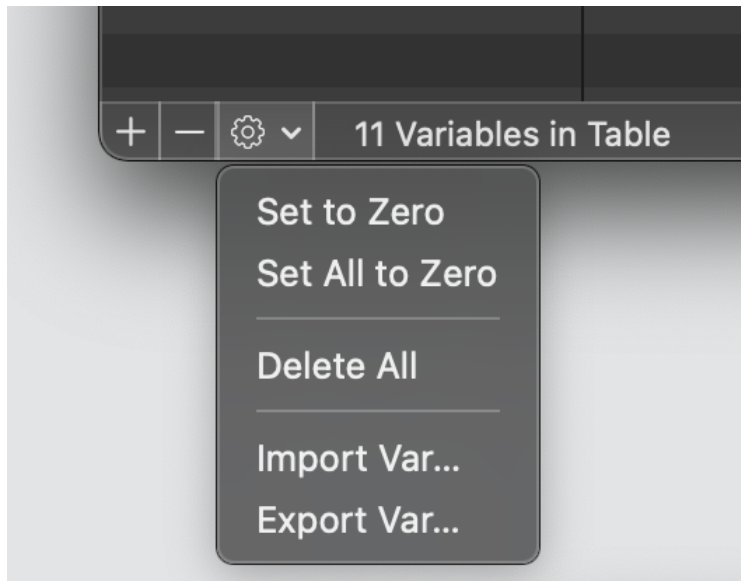


You can edit a variable value also inside the table

After changing manually it's value, future calculation will be affected by this change



Manipulating variables inside the Variable table is intuitive and immediate. You can Add remove and perform further functions on the variable inside the table using the additional popup menu at the bottom of the table.



You can undo and redo action performed on variables via the Undo/Redo command under the Edit menu

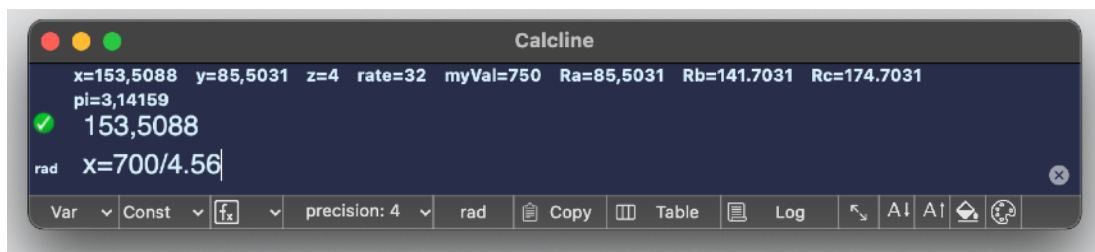
## Variable Use as left value

You can use variables available in the table also as left value during calculation.

The variable will be assigned the value resulting from the expression calculation. as example if you input:

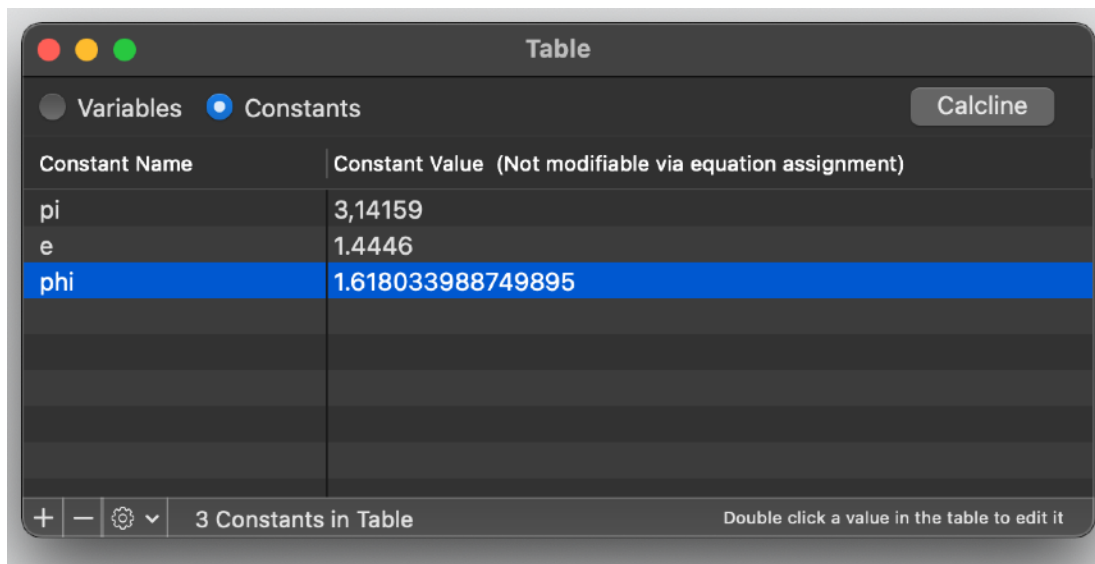
$x = 700 / 4.56$  the result of the operation will be assigned to a variable of name x.

If there is already a variable with that name inside the Variable table, the value will be updated, if not a new variable with that name will be created.



## Constant Use

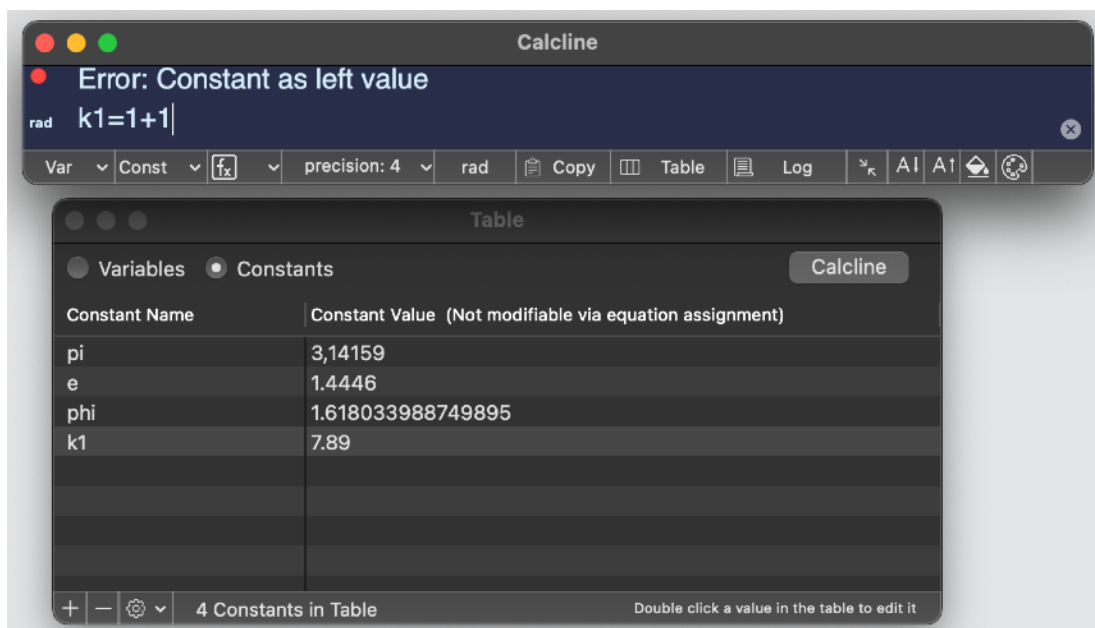
You can use constants in a similar way of variables in the right part of expressions



You can manipulate constants directly in the Constant Table

Constant can't be used as left value of equations

Trying to assign a constant value using a constant in a left part of an expression will generate an error.



If you need to change a constant value, the only way is to edit it's value in the table.

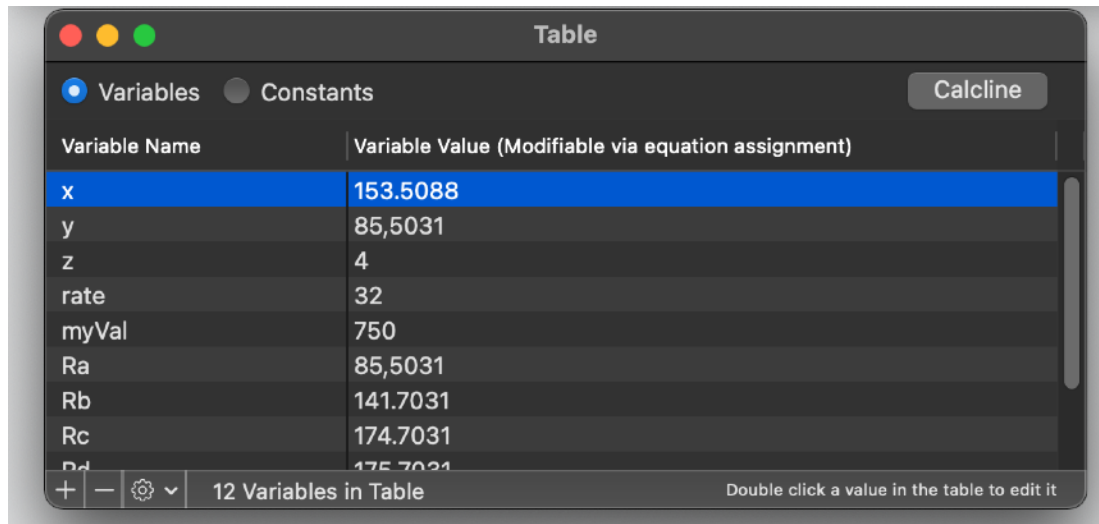
Manipulating constants inside the Constants table is easy as for the variables. You can Add remove and perform further functions on the constants inside the table using the additional popup menu at the bottom of the table.

You can undo and redo action performed on variables via the Undo/Redo command under the Edit menu

## Import of variables and constant

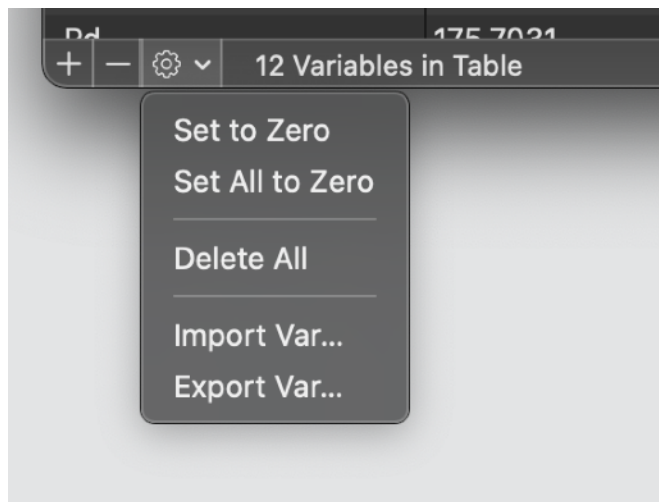
It is possible to import and export variables and constant from and to text files

Input has to be a text file in tab separated value or comma separated values  
To import select the Variables or Constant in the upper part of the table

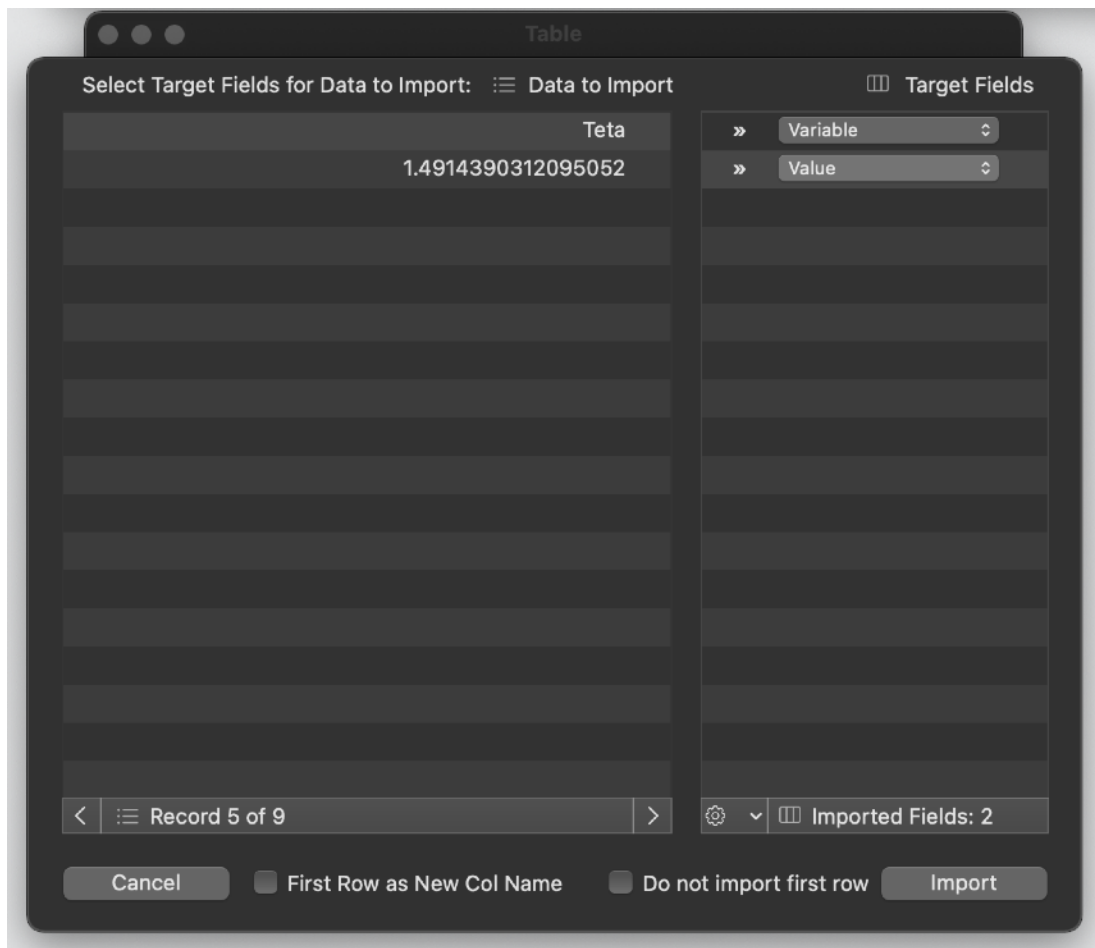


| Variable Name | Variable Value (Modifiable via equation assignment) |
|---------------|-----------------------------------------------------|
| x             | 153.5088                                            |
| y             | 85,5031                                             |
| z             | 4                                                   |
| rate          | 32                                                  |
| myVal         | 750                                                 |
| Ra            | 85,5031                                             |
| Rb            | 141.7031                                            |
| Rc            | 174.7031                                            |
| Rd            | 175.7031                                            |
| Re            | 176.7031                                            |
| Rf            | 177.7031                                            |
| Rg            | 178.7031                                            |

Then select Import from the Tool popup at the bottom of the window



Then select a file to import and after selection select what to import



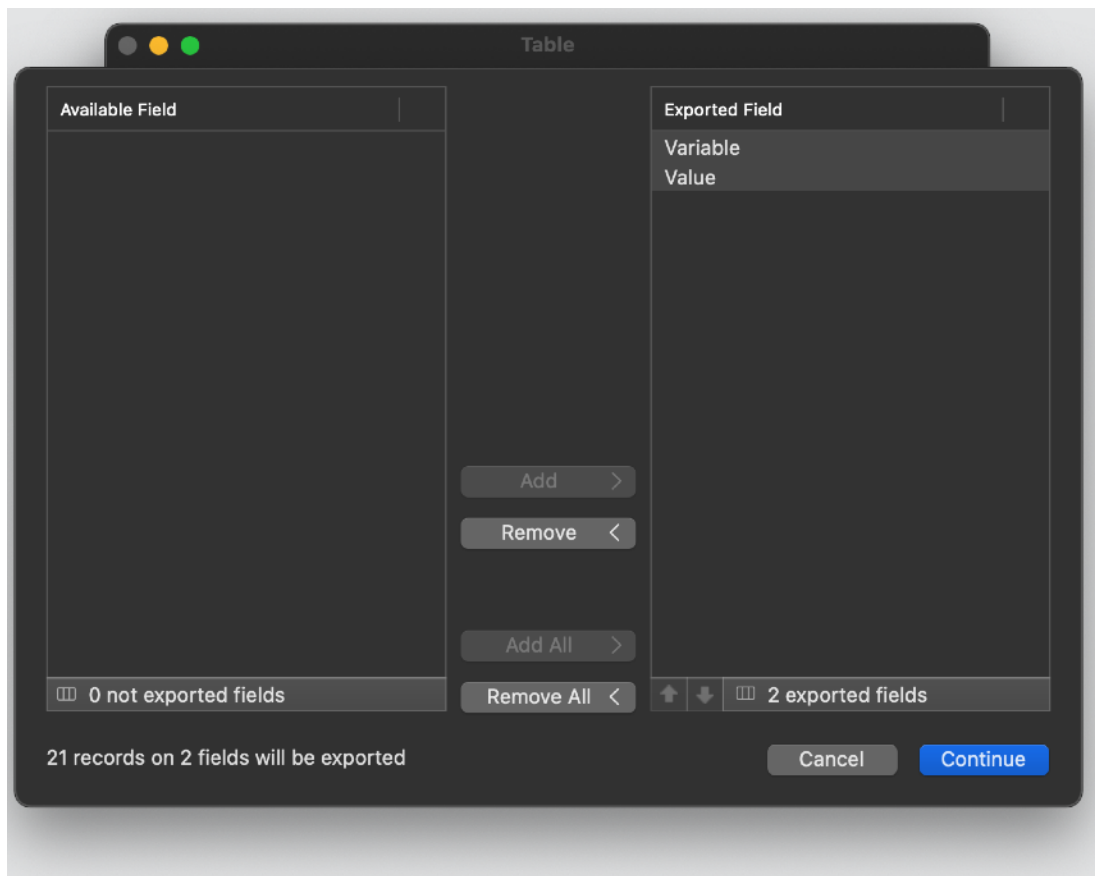
You can browse all the rows inside the dialog to make the right selection  
Confirm and the values will be imported inside the table

## Export of variables and constant

It is possible to export to a text file

Select in the upper part of the table Variables or Constants

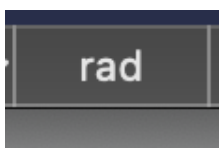
Select which fields to export from the 2 available (name and value)



which format from the available (you can even select a custom format defining the tag you like then save on disk.

## Radians and Degree

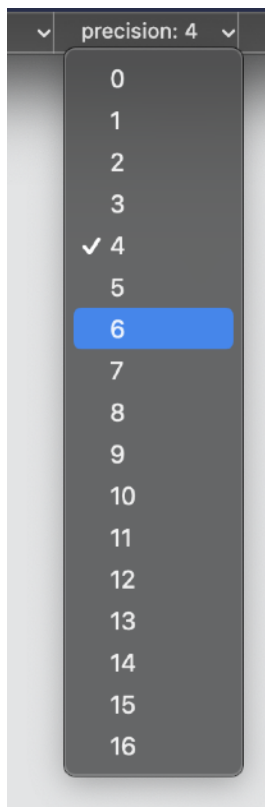
You can switch between radians and degree using the button in the window



Performing calculation in radians or degree changes the result in trigonometric functions

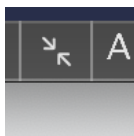
## Numeric Precision

You can change numeric precision used using the precision popup

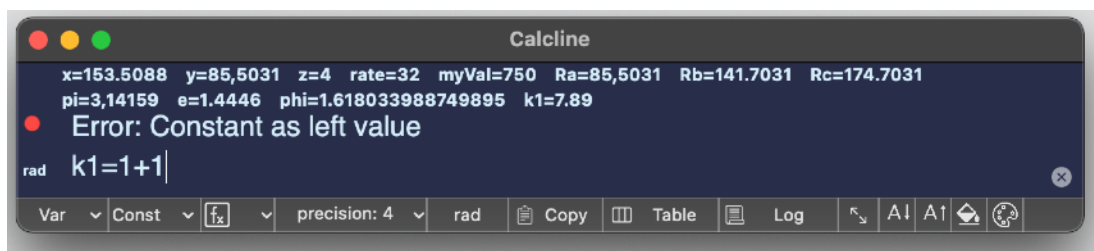


## Extended view

It is possible to show variables and Constants inside the calcline windows using the enlarge icon

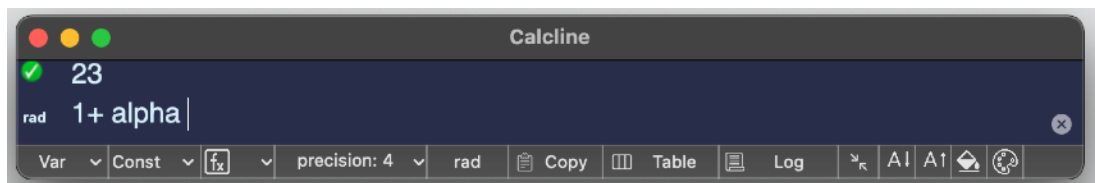
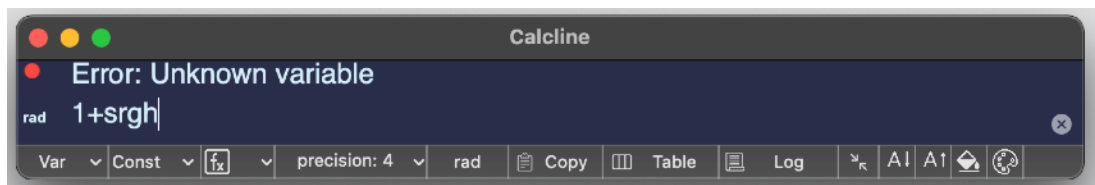


The variables and the constants are displayed in two rows



## Error Handling

Calcline handles and informs you about errors in the input field to let you correct them and retry calculation



After an error it's enough to fix the error and press return again to calculate the expression it again

## Custom Size and Color

You can personalise the size of the input and result text and the color of the text and the background color of the window

To increase decrease the size use the two buttons at the bottom of the window



To change the background color of the window use the color icon at the bottom of the window



To change the text color use the nearby icon button

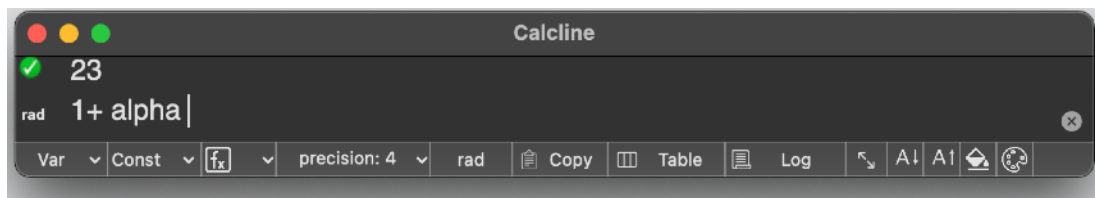


Select the color you like in the Color selection window



Color and size set are remembered over application relaunches

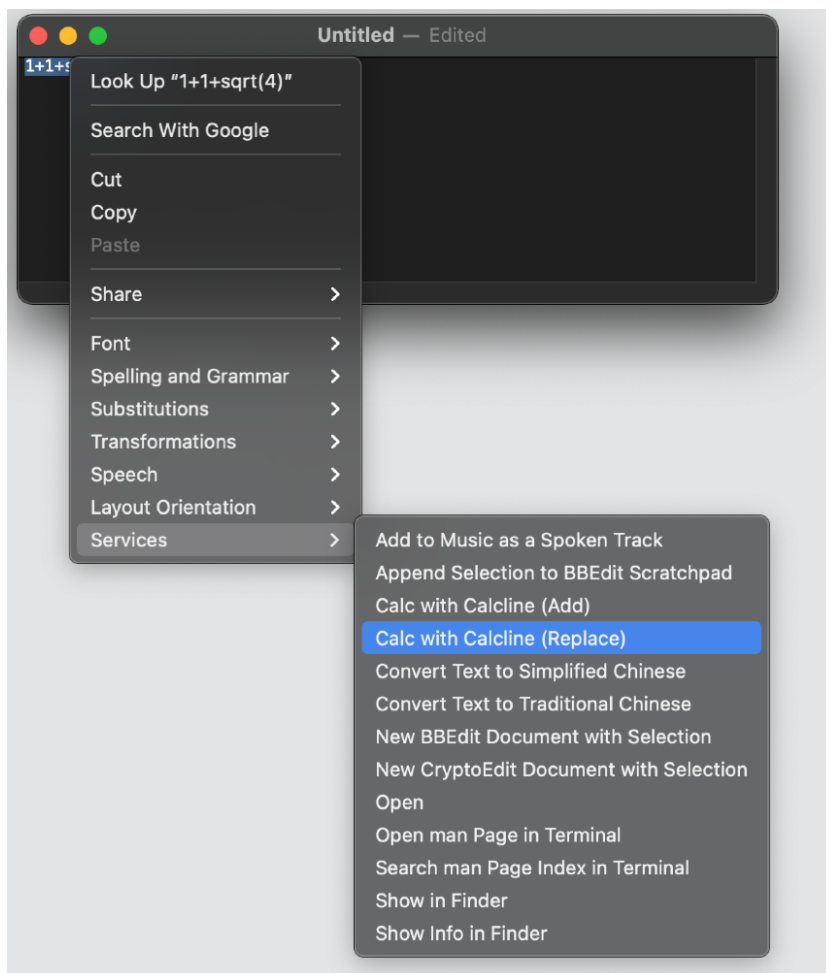
At any time you can go back to the default color using the 'Default Window Color' command under the 'Tools' menu



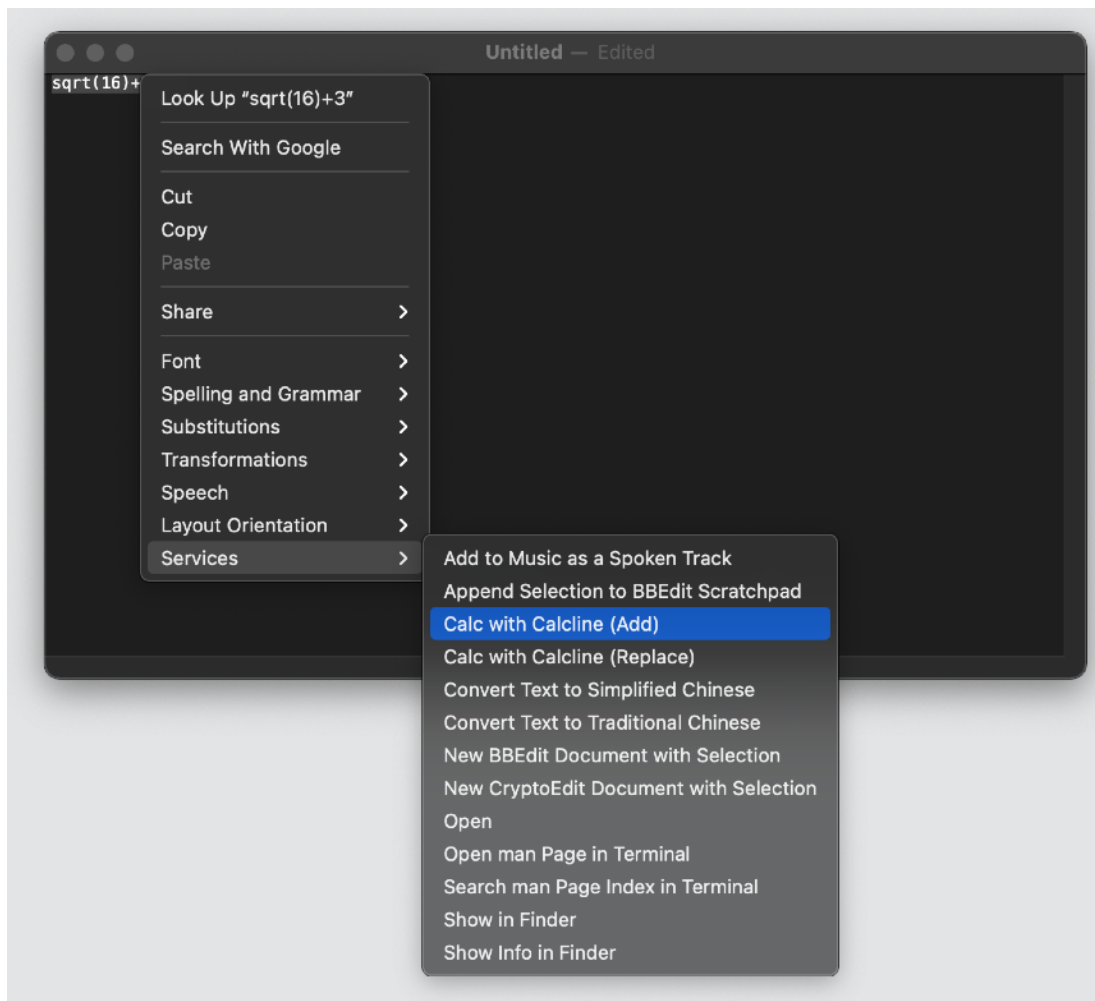
## Use Calcline as a services from other applications

You can calculate expression from any other application using Calcline as a services  
 As example you can select a text expression in any other word processor or text editor and select from the application menu of the app in use at the moment  
 Services > Calc With Calcline

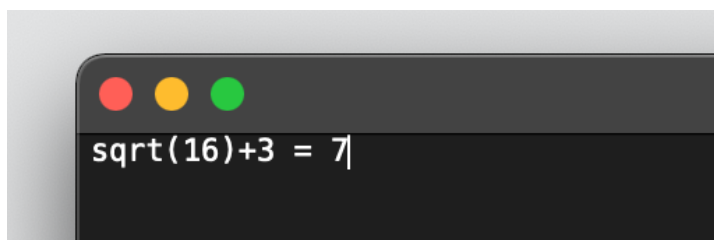
The service is also available via a popup menu, selecting a text inside any other application and right clicking or ctrl-clicking the text



If you use Calc with Calcline (Replace) the expression will be substituted with the result

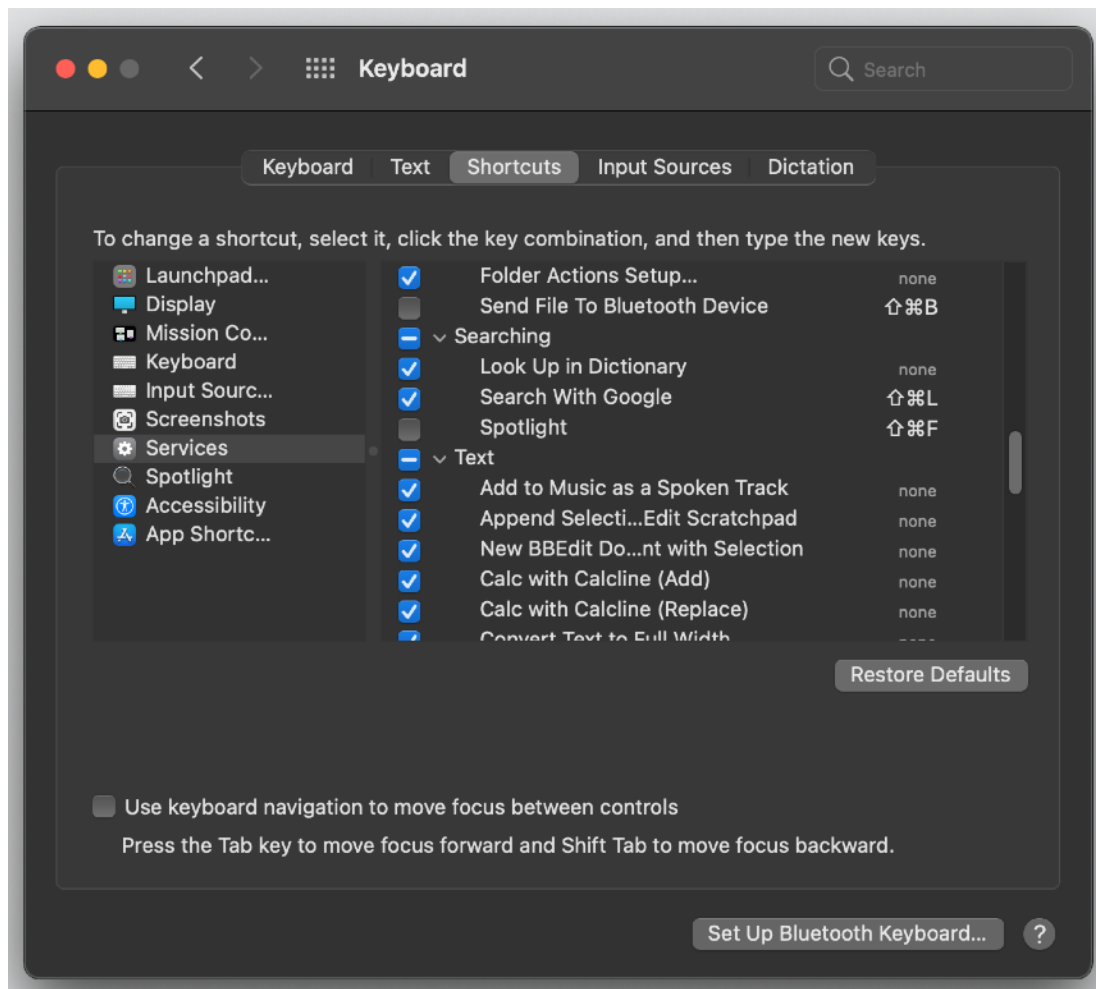


If you sue Clc with Calcline (Add) the expression will be kept adding a '=' sign and the result



After installing Calcline on your Mac to have the 'Calc with Calcline' active as a service inside other application, you have to activate it in the preferences selecting the:

Keyboard > Keyboard Shortcut > Services option



## Preferences

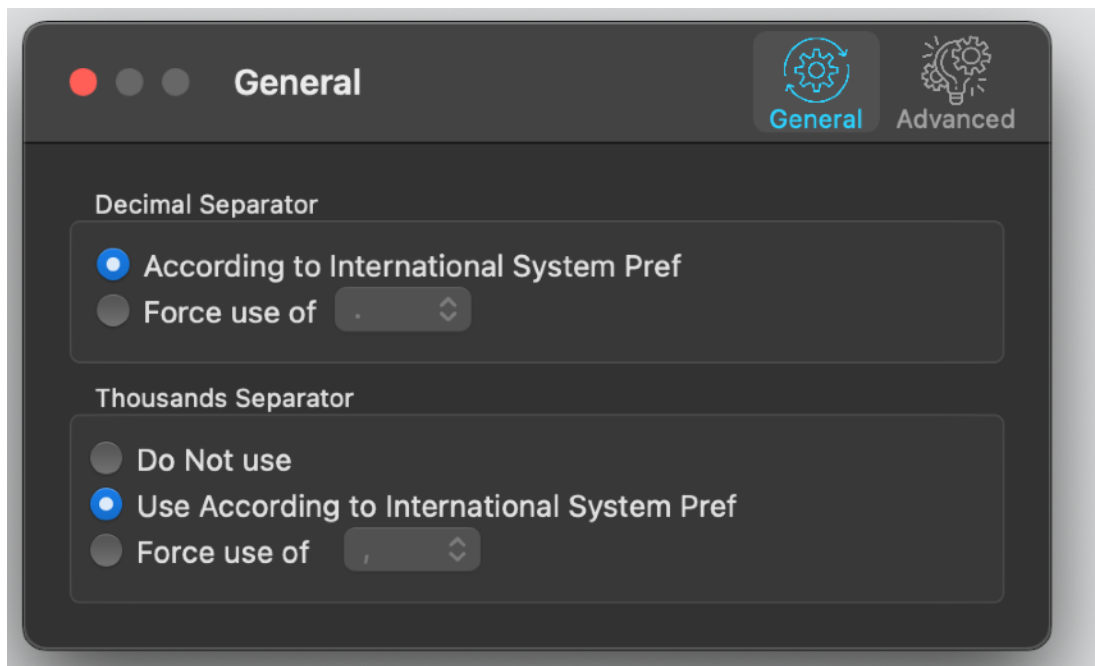
### General

Decimal separator let you set the char used to separate decimal part of numbers

Thousand separator let you set the char used to separate thousands in numbers

Log Let you select the tag used at any line of the logged calculation

Calculation separator let you specify a line of chars to be used as separator between different calculations



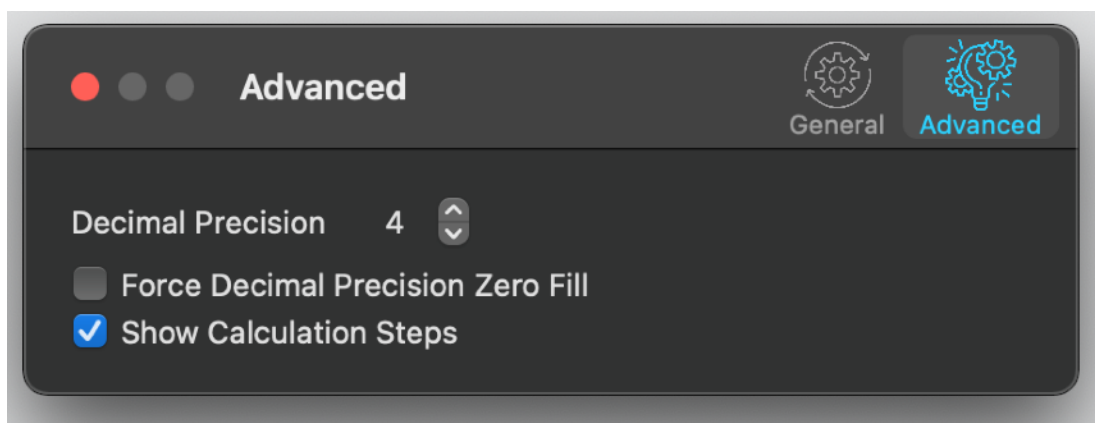
## Advanced

'Decimal Precision' specify how many positions to use after the decimal place in showing numbers

Force Decimal Precision Zero Fill let you to force the use of a specified 'Decimal Precision' using in case zeros to fill up to the required precision

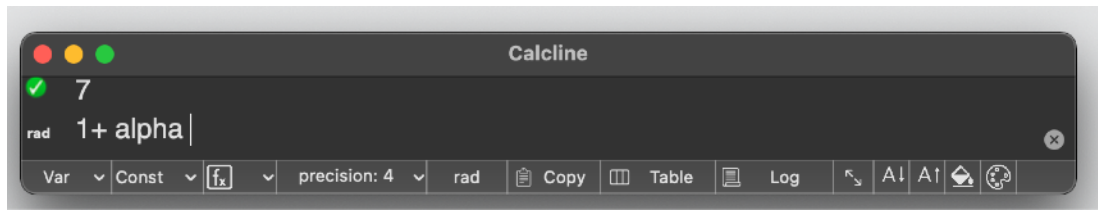
Example: if the required Decimal Precision is 3 and the number to show is 7.4 it will be printed on screen as 7.400

'Show Calculation Steps' specify if to show or not the calculation step by step in the CalcLog area

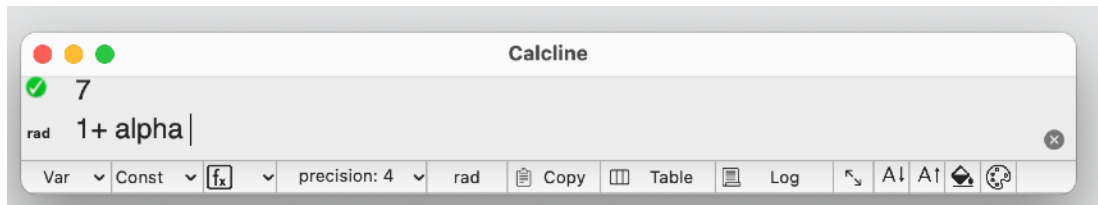


## Light and Dark Appearance Mode

Calcline 4 is fully compatible with Light and Dark Appearance.



You can switch at any time from one mode to another



## Help

Calcline provides a PDF user guide under the Help menu.

## Support

You can also obtain support using the 'Support Email...' command. An email will be prepared using your email client with the correct address to send to.  
Yes, we answer to your emails.

## Web Site

Visit our site if you need further info on Calcline or other application we make.

## About Tension Software and Ecleti

All the software asset by Tension Software is now under Ecleti  
New company name but still the same owner and main developer (Roberto Panetta)  
So for the users nothing changes. We provide the same software and the services.  
All the user licenses are valid and assistance is provided as before to all our users.

# Function Appendix

## $\text{sqrt}(x)$

The function returns the real square root of  $x$ .

An error occurs if  $x < 0$ .  
Example: `sqrt(4.5)`

### `cbrt(x)`

The function returns the cubic root of  $x$ .  
Example: `cbrt(8)`

---

### `sin(x)`

The function returns the sine of  $x$ .  
Example: `sin(1.570796)`

This function is effected by the selection radiant/degree  
Make your input according to the selected convention

### `cos(x)`

The function returns the cosine of  $x$ .  
Example: `cos(1.047198)`

This function is effected by the selection radiant/degree  
Make your input according to the selected convention

### `tan(x)`

The function returns the tangent of  $x$ .  
Example: `tan(0.785398)`

This function is effected by the selection radiant/degree  
Make your input according to the selected convention

### `asin(x)`

The function returns the arcsin (the angle whose sine is  $x$ ) in the range  $[-\pi/2, +\pi/2]$  radians.

Example: `asin(0.8413)`

Argument  $x$  must be in the range  $-1 < x < +1$  or it will generate an error.

This function is effected by the selection radiant/degree

Returned value will be in according to the selected convention

### `acos(x)`

The function returns the arccos (the angle whose cosine is  $x$ ) in the range  $[0, +\pi]$  radians.

Example: `acos(0.215)`

Argument  $x$  must be in the range  $-1 < x < +1$  or it will generate an error.

This function is effected by the selection radiant/degree

Returned value will be in according to the selected convention

### `atan(x)`

The function returns the arctangent (the angle whose tangent is  $x$ ) of  $x$ .

Example: `atan(4.235)`

This function is effected by the selection radiant/degree

Returned value will be in according to the selected convention

### **sinh(x)**

The function returns the hyperbolic sine of x.

Example: `sinh(0.933)`

This function is effected by the selection radiant/degree

Make your input according to the selected convention

### **cosh(x)**

The function returns the hyperbolic cosine of x.

Example: `cosh(1.12232)`

This function is effected by the selection radiant/degree

Make your input according to the selected convention

### **tanh(x)**

The function returns the hyperbolic tangent of x.

Example: `tan(0.7847)`

This function is effected by the selection radiant/degree

Make your input according to the selected convention

### **asinh(x)**

The inverse hyperbolic sine of the real argument

Example: `asinh(1,2493670505239753)`

This function is effected by the selection radiant/degree

Returned value will be in according to the selected convention

### **acosh(x)**

The principle value of the inverse hyperbolic cosine of x.

The result is in the range  $[0, +\infty]$ .

`acosh(1,2537539340920866)`

This function is effected by the selection radiant/degree

Returned value will be in according to the selected convention

### **atanh(x)**

The inverse hyperbolic tangent of the real argument x.

`atanh(0,4804727781564516)`

This function is effected by the selection radiant/degree

Returned value will be in according to the selected convention

### **log(x)**

The function returns the natural logarithm of x.

Example: `log(4.113)`

Argument x must be  $\geq 0$  or it will generate an error.

### **log10(x)**

The function returns the base-10 logarithm of x.

Example: `log10(100)`

Argument x must be  $\geq 0$  or it will generate an error.

### **exp(x)**

Exponential function. The function returns the base-2 exponential of x

### `exp2(x)`

Exponential 2 function. The function returns the base-e exponential of x

### `expm1`

Exponential 2 minus 1 function. The function returns the base-e exponential of x minus 1 accurately even for very small values of x.

### `abs(x)`

The function returns the absolute value of x.

Example: `abs(-18.5)`

### `ceil(x)`

The smallest integer value greater than or equal to x.

Example: `ceil(333.25)`

### `floor(x)`

The largest integer value less than or equal to x.

Example: `floor(22.74)`

### `rand(x)`

Provides a random floating value included between 0 and x .

Example: `rand(5.5)`

### `+`

Addition of two values

Example: `1+1`

### `-`

Subtraction of second value from first

Example: `3-2`

### `*`

Multiplication of first value for the second

Example: `2*5`

### `/`

Division of first operator by the second

Example: `4/2`

### `^`

Power Elevation

Example: `6^3`

### `!`

Factorial Value

Example: `4!`

## Other Software We Make

Yes. We have more than one app in the App Store. Please have a look using, from the help menu the 'Show App Store List' command.

Maybe we have some other app that you can like!  
Thank you for your support.

## About Tension Software and Ecleti

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