Eternity User Guide

Setting Up Eternity

To run the calculator, be sure to type in the terminal:

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<td>

- pip install -r requirements.txt

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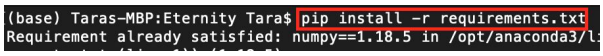

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- npm install

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To use the web version, type:

- npm start

Once you do this you'll see that it is running on localhost:3000

You can then enter "http://localhost:3000/" in your browser and you'll see the calculator.

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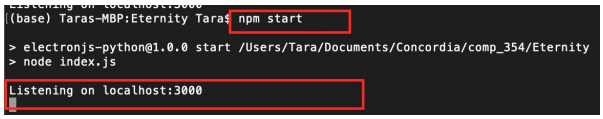

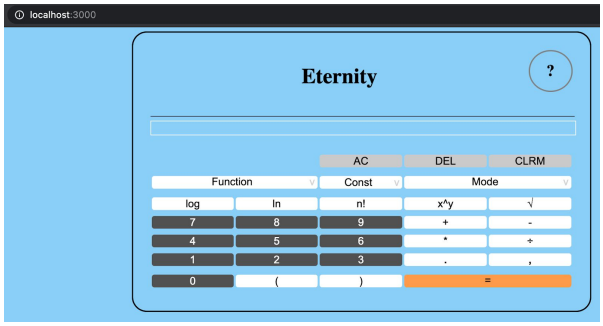

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To use the local version, type:

- npm run electron

Once this is done, a browser should pop up with the calculator.

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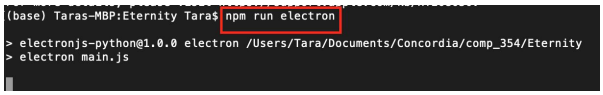

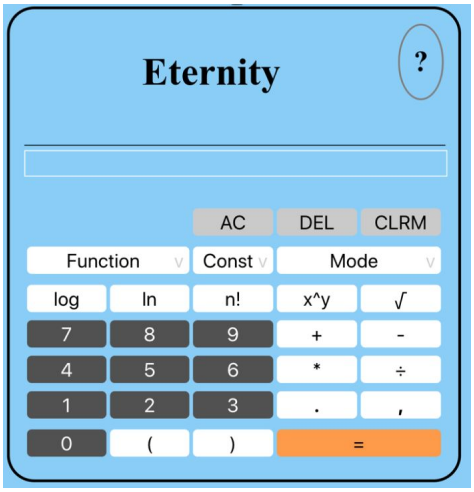

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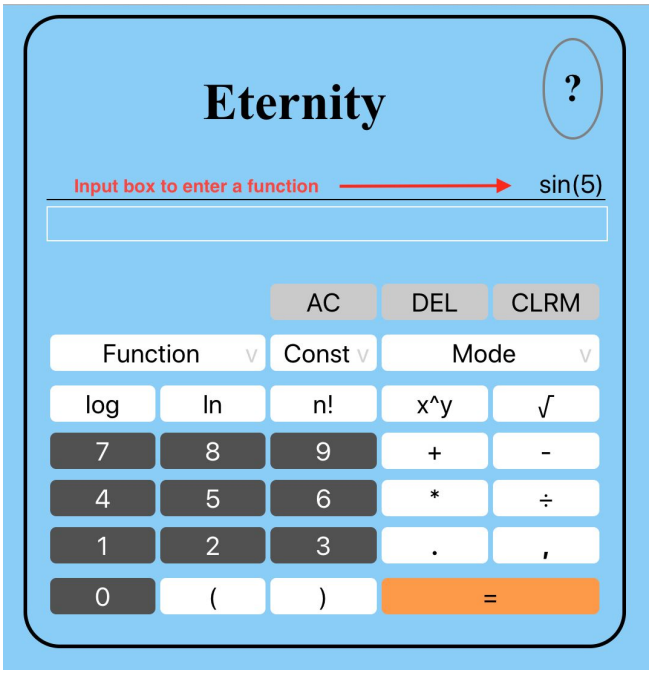
Performing Calculations

Inputting an equation

There are two ways that you can enter equations into a calculator:

Option 1: By clicking on the buttons that corresponds to the equation

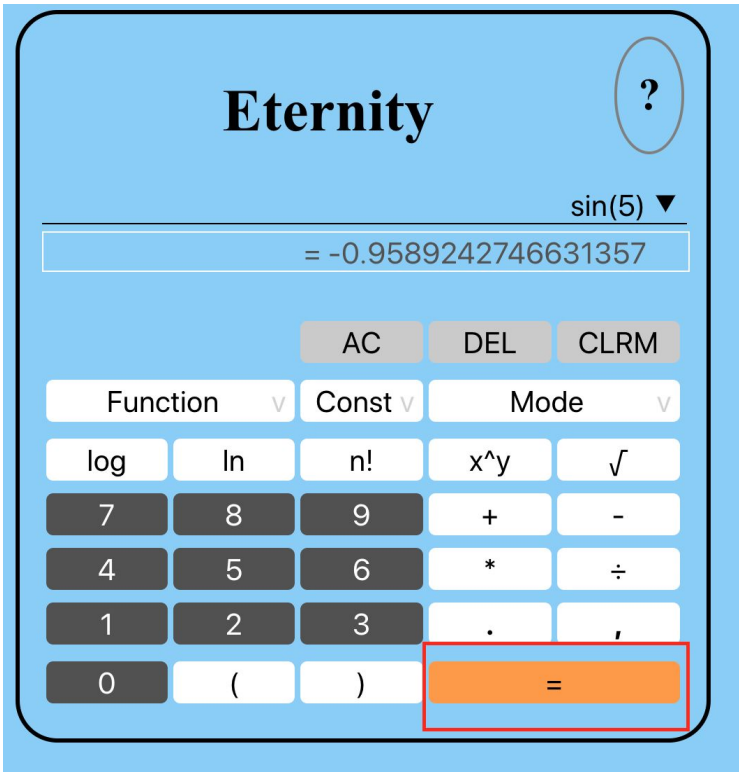
Option 2: By typing in the equation directly into the input box:



Getting the result of an equation

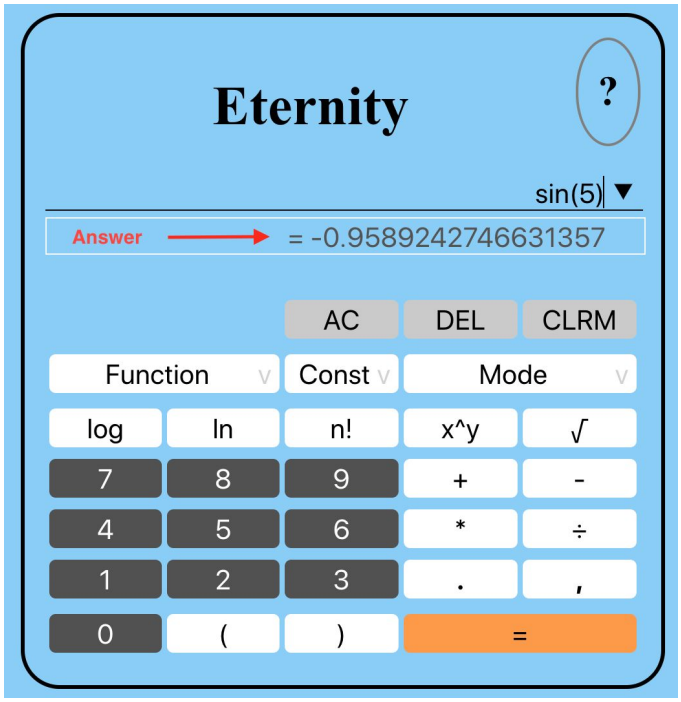
To get the answer of the equation, there are also two options:

Option 1: To click the equals button



Option 2: Directly clicking enter on your keyboard

For both of these options, you'll get the answer underneath the equation entered:



Important guidelines for input:

Correct number of brackets

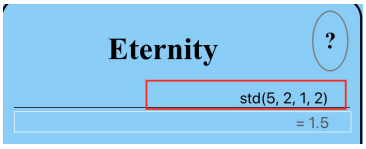
- If you use the buttons to enter equations, it will automatically populate an open bracket.
    - For example, if you click on the “sin” button, the input will be “sin(“
    - Once you are done entering the values that should be within the bracket, it is important that you enter the closing bracket.
    - Otherwise, you will get an error as the equation has the opening bracket but is missing the closing bracket.

All operations must be explicitly specified

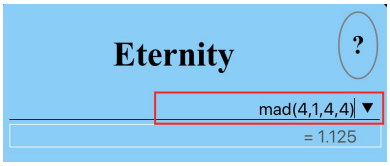
- For example, the equation “4sin(5)” would be considered invalid and would result in an error.
- In this case, the multiplication sign must be included.
    - The correct equation would be “4*sin(5)”

Commas for standard deviation and mean absolute deviation

- For standard deviation, all data set values must be entered followed by a comma
    - For example: “std(5, 2, 1, 2)”

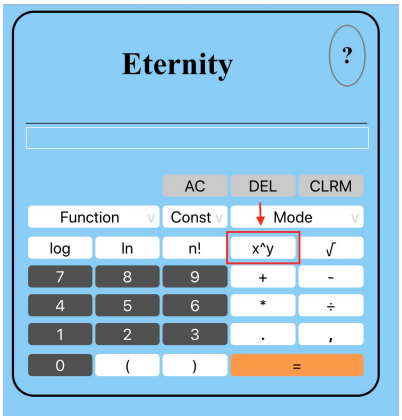
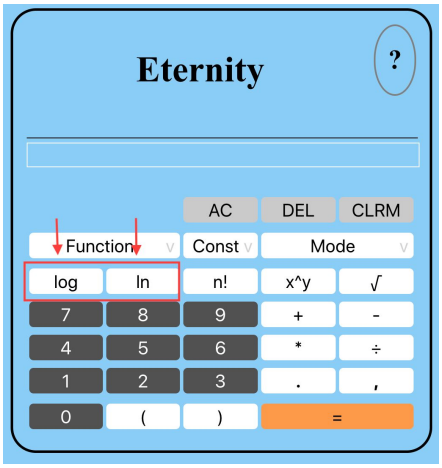


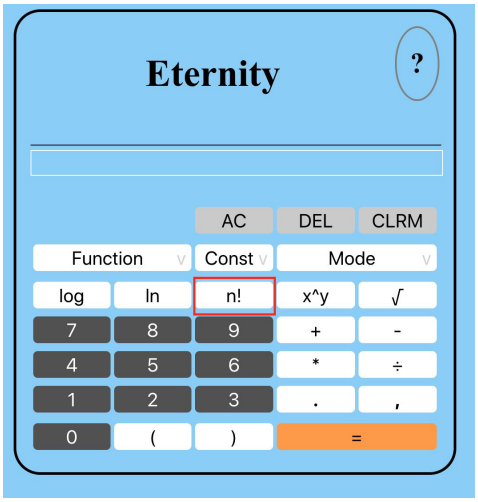
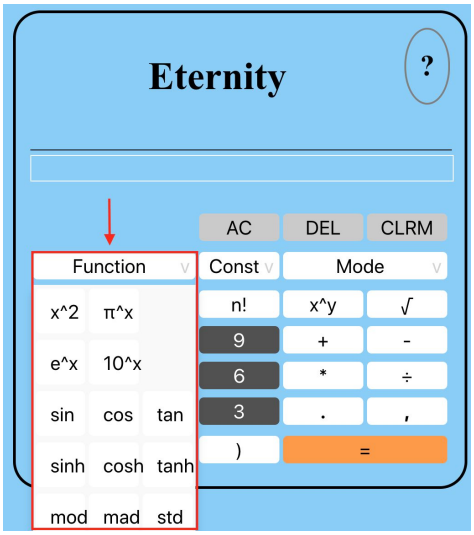
- For mean absolute deviation (MAD), all data set values must be entered followed by a comma
    - For example: “mad(4,1,4,4)”



Description of the functions

In addition to basic arithmetic, the calculator supports the following functions:

Functions	Location on calculator
exponents	
Logarithmic functions: • log • ln	

• factorial	
Trigonometry • sin • cos • tan Hyperbolic: • sinh • cosh • tanh • mod • mean absolute deviation (mad) • standard deviation (std) These are all located in the “Function” drop down menu. In addition, this “Function” menu contains secondary functions that, although, you could calculate through the standard x^y button, are also available as their own button for convenience: • x^2 • π^x • e^x	

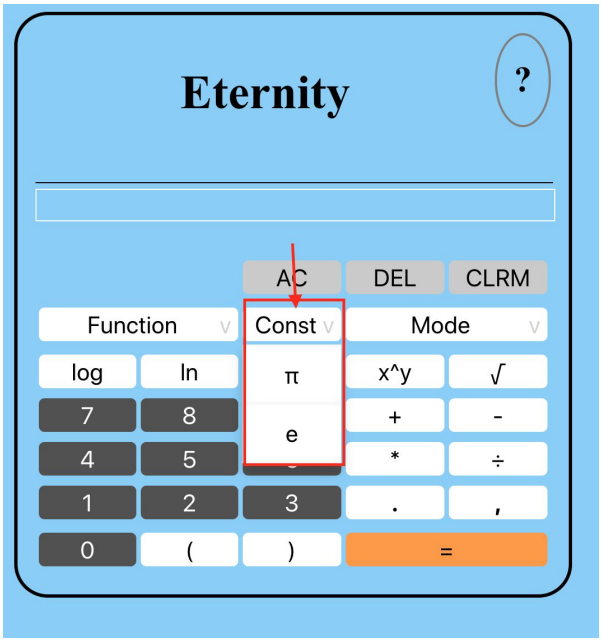
• 10^x	

Buttons to enter constants

On the calculator, there are two constants available:

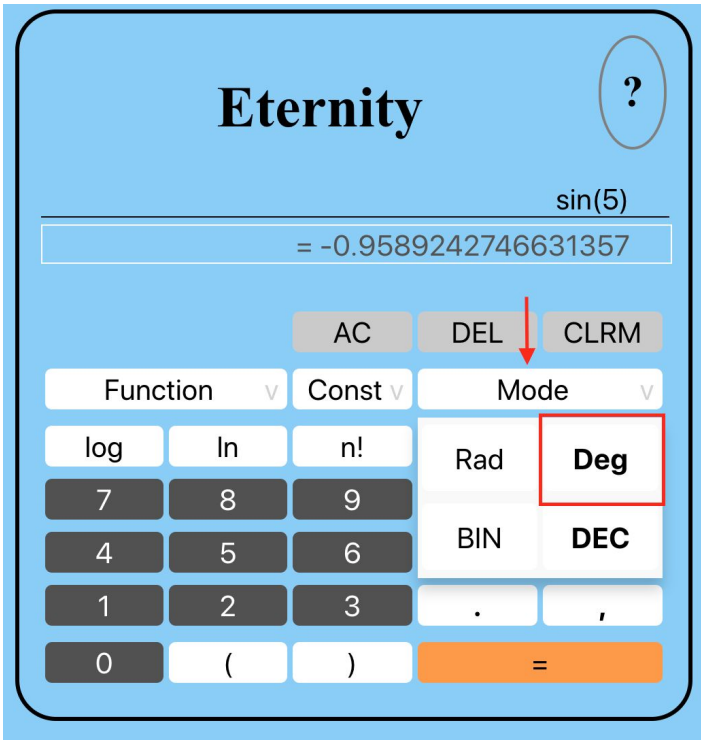
- π
- e

Both of these constants are available under the “Const” drop down.



Changing Angle Mode

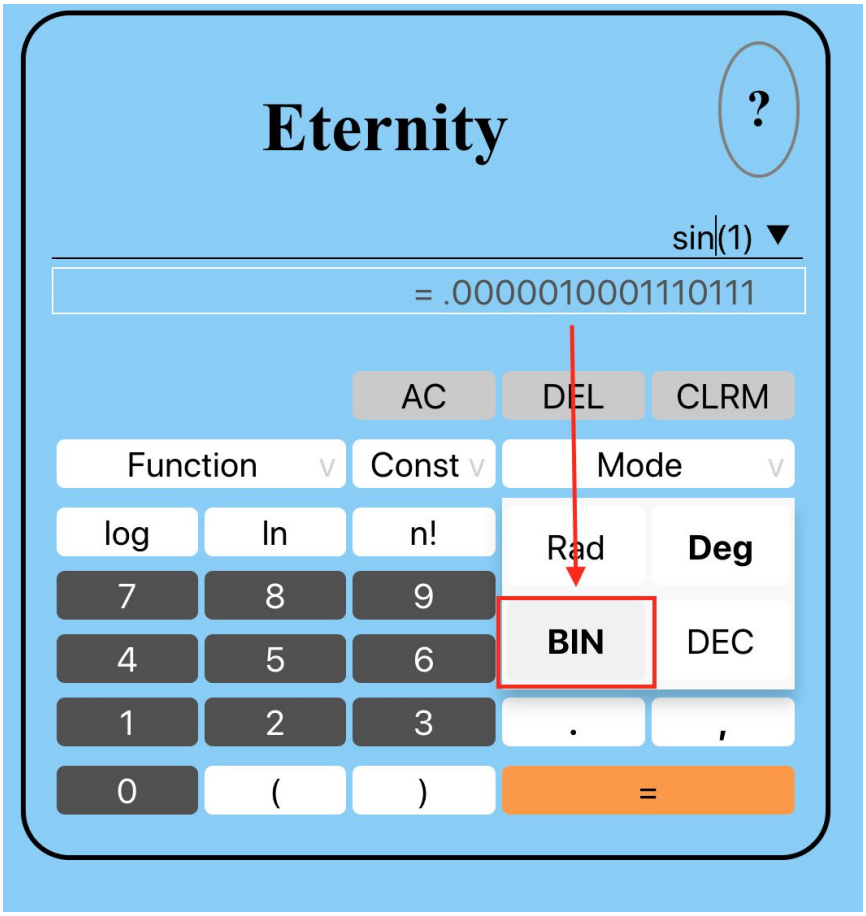
The default mode of the calculator is to use radian for all trigonometric functions. However, sometimes you may want to calculate a value corresponding to an input angle defined in degrees. If you wish to switch to degrees, you can click on the “Deg” button under “Mode”.



Once you do this, you’ll see that “Deg” will now be in bold, signaling that this is the setting chosen. To return to radian mode, simply press the “Rad” button.

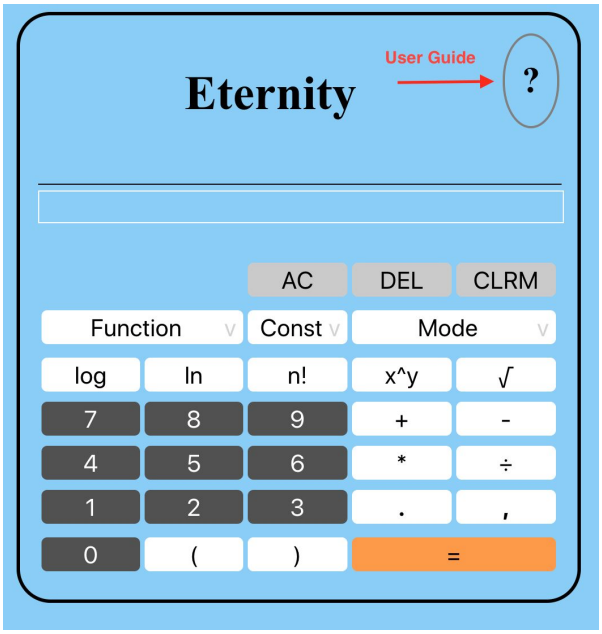
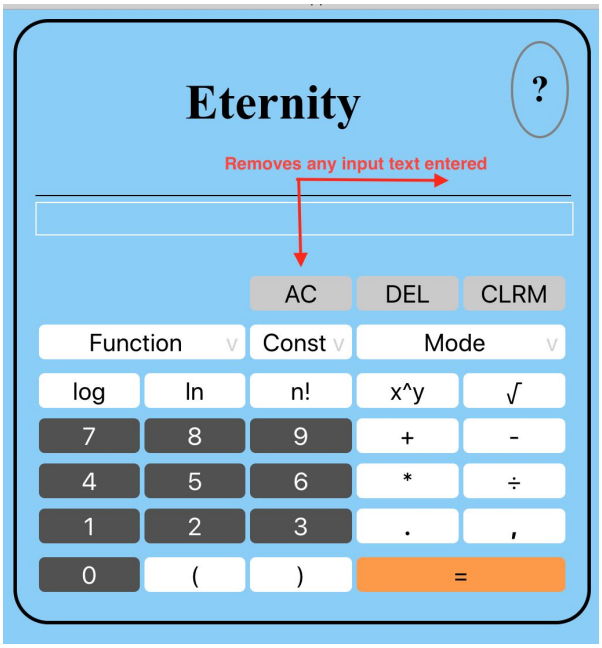
Changing Numeral System

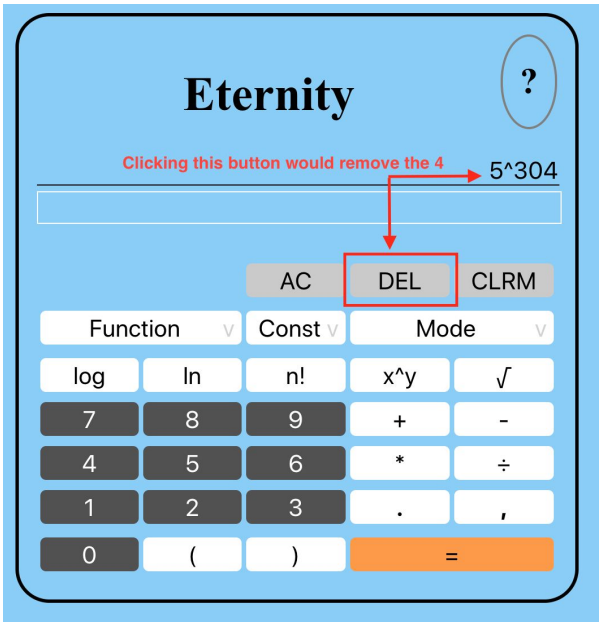
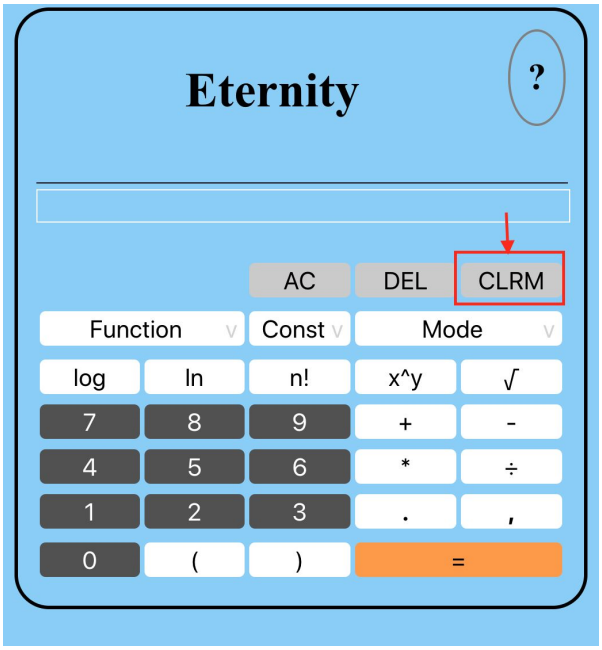
The default mode of the calculator is to use decimal as both the input and output. However, sometimes you may want to have your input and result be in binary. If you wish to switch to degrees, you can click on the “BIN” button under “Mode”.



Once you do this, you’ll see that “BIN” will now be in bold, signaling that this is the setting chosen. To change the number system back to decimal, you may press the “DEC” button at any time.

Other helpful buttons

Question mark icon: • This icon directs you to the user guide	
AC: • This clears the input equation that was entered. • So, if an incorrect equation was entered, it can be cleared from the screen.	

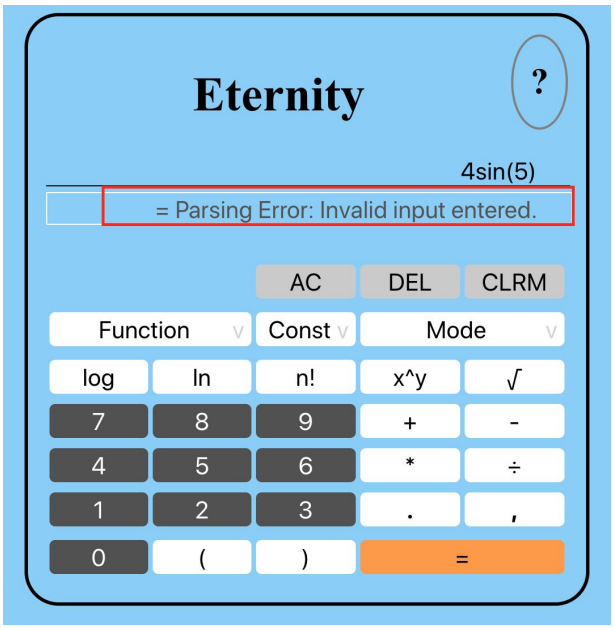
DEL • This button removes the last character on the input text.	
CLRM • This button clears the memory	

Error Descriptions and Meanings

There are three error messages that can occur:

1. Parsing Error
2. Input Error
3. Arithmetic Error

Parsing Error: Invalid input entered



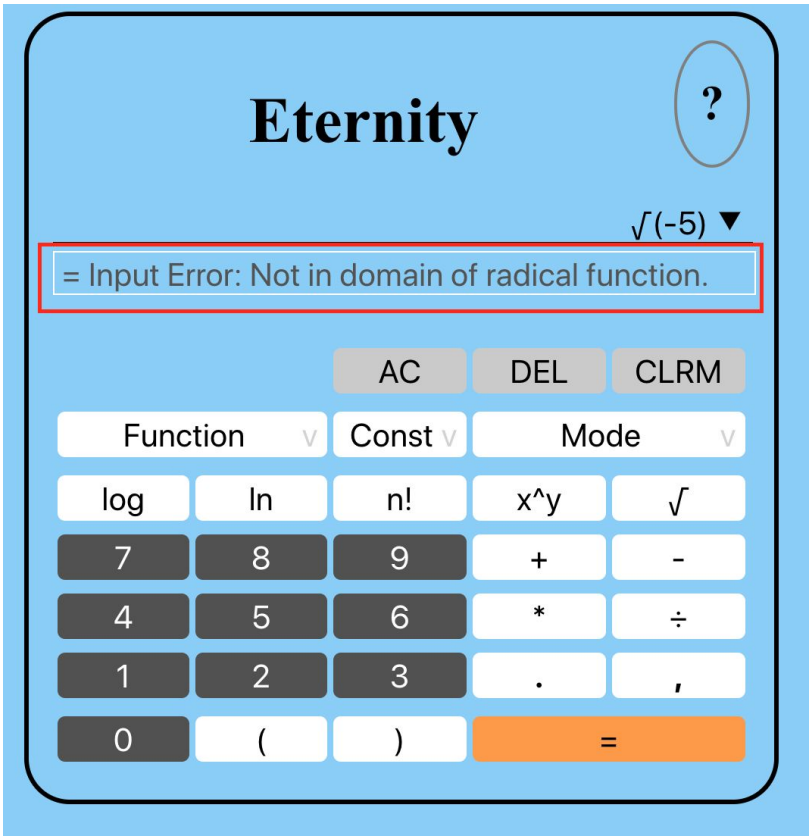
Reason for this error:

- This error occurs when the expression entered is not in the proper format, or uses characters that are not supported.

Common Examples:

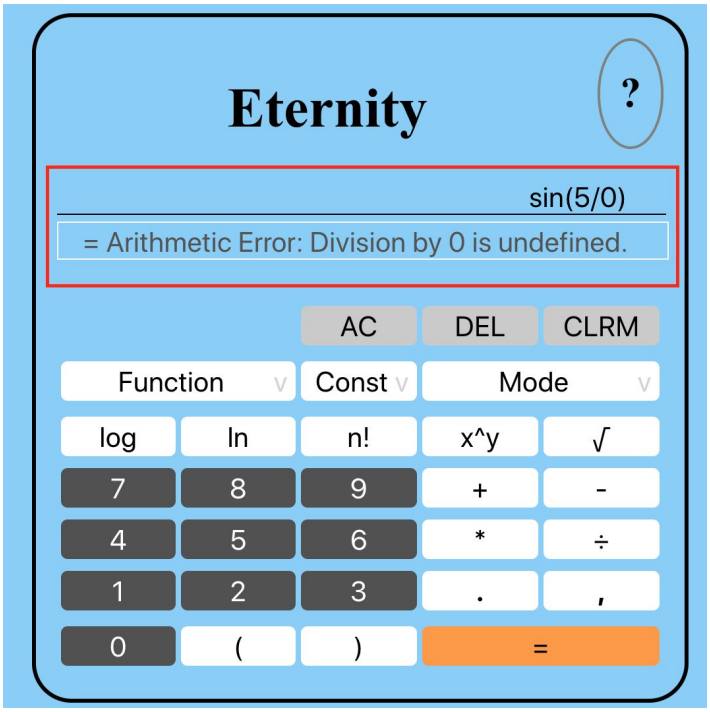
Invalid input	Correct input	Notes
4sin(5)	4 * sin(5)	All operations must be explicitly specified. Thus, in this case the multiplication sign must be included.
sin(5	sin(5)	Closing parenthesis must be included

Input Error: Not in domain of radical function



Reason for this error:
This error occurs when the expression entered is not of the domain of the selected function.

Arithmetic Error: Division by 0 undefined



Reason for this error:
This error occurs when the expression entered contains a division by zero.