

# Radix Leaf (iPhone/iPad/iPod touch application)

## Operation manual Ver 1.5 (2019/ 1/25)

**At the beginning:** Please touch the numeric location "where you want to input or change" in the sheet. Numeric is entered. And calculation result is automatically displayed when you fill desired value. No explanation is necessary for basic calculations, I think. This manual includes only the minimum functional description.

**Attention:** This application is intended to modify numeric easily. Conversely, numeric may be changed by unintentionally touch. Please check by yourself carefully any value, if you use it to practical purpose. I make no warranty and can't respond to claims of any kind of damage.

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(All figures in this manual is iPhone 3.5inch, iOS9.x)

## Calculation Sheet

2 same logic/add/mul sheets and 1 addition, multiplication, total sheet are attached.



**Numeric part:** The thin color large squares are for numerical input or calculation result display. Input guide numeric is dimmed before entering numeric in the input section.

**Touch directly** the most significant digit of the numeric. The digit changes by the following action. Adjust each digit to necessary numerical values by repeatedly similar touch actions. (See P.4)

**Keyboard** appears if you press the left side button. (Before numeric input. See P.5)

Button becomes 'lock' when numeric exist. You can lock the numeric by it.

2 sets display format (base) is selectable by this button. (See P.6)

**Label part:** Dark color behind has the below mentioned functions.

**Sheet Change:** Touch and move right or move left.

**Select Label (addition, multiplication sheets only):**

Touch and move down or move up.

**Copy/Paste a sheet:** Touch and select from balloon.

(Selector is available in the case it works.)

Sheet text is stored in pasteboard. You can paste it into another application like E-mail. When pasting, all numerical is fit to setting of the field. But locked field is skipped.

**Selector:** The thin color small square is a selector.

You can choose by the touch (up or down) from the defined content.

Where it is not the input section, a touch changes it to the input section.

**Clear** this sheet numerical (excluding memory) or selected one numerical/memory.

System Settings (See P.6)

2 Memories

## Numerical Input

The touch operation differs whether in blank or on numeric.



**On numeric**, value of below table is added to or subtracted from the touched digit .  
When moving up or down, continuous operation is allowed, to adjust the value.  
Only the touched digit is affected and other digits are kept.

**In blank**, right table functions are attached.

	Add 1 in front of highest digit	
Insert 1 digit '0' last	Copy/Paste (See below)	Delete last 1 digit
	Switch plus and minus	

	+2(-8)	
Insert 1 digit	+1(-9)	Delete 1 digit
	+9(-1)	

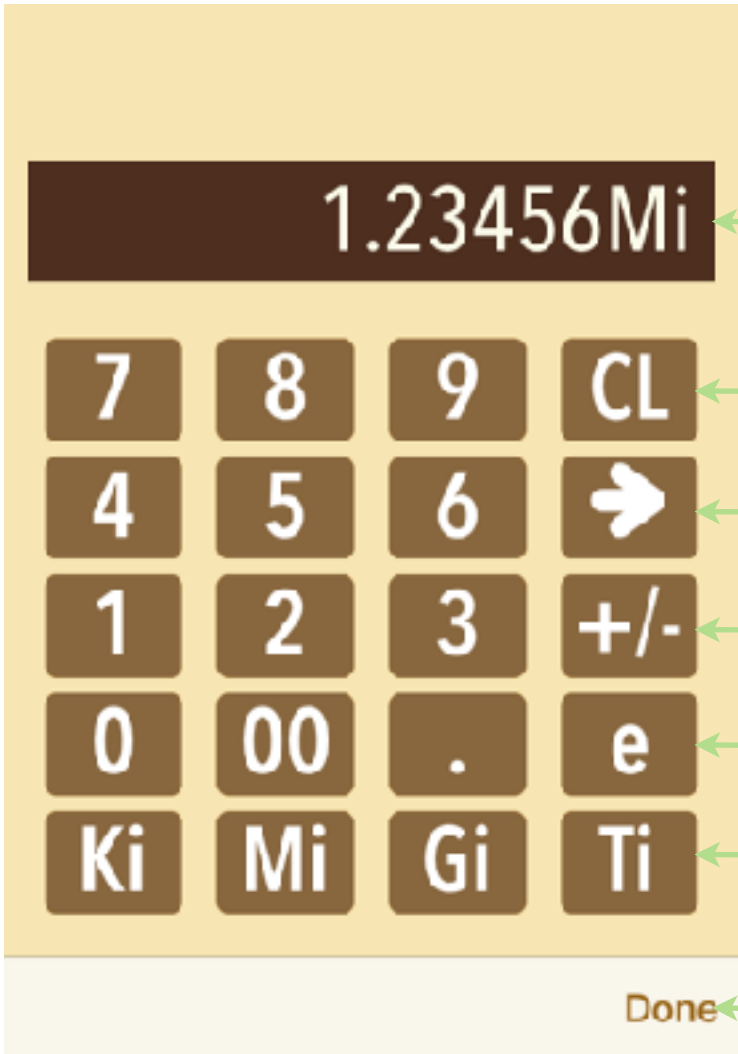
### Copy/Paste a numeric

- (1) Touch blank in front of the numeric you want to copy. It becomes thin color.
  - (2) Touch destination numeric field. The value (1) is copied. Or touch again same (1). The value is stored in pasteboard.
  - (3) At no input situation on the input field, by a touch blank in front of numeric guide, the value in pasteboard is pasted.
- The memory button is possible to use instead of numeric field.

Each sheet calculation is done when that can be calculated.

## Keyboard

The figure is base10 keyboard. The keyboard varies by base number.



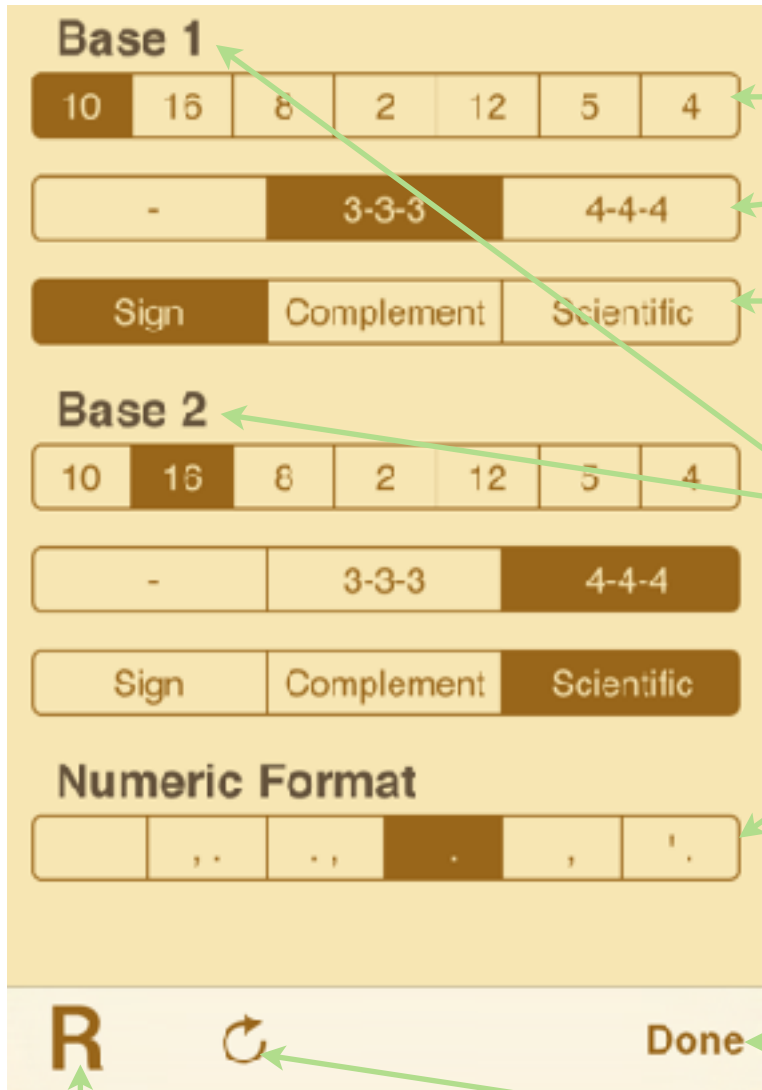
The image shows a calculator keyboard interface with a display and several rows of keys. The display shows the number '1.23456Mi'. The keyboard has the following keys:

- Row 1: 7, 8, 9, CL
- Row 2: 4, 5, 6, →
- Row 3: 1, 2, 3, +/-
- Row 4: 0, 00, ., e
- Row 5: Ki, Mi, Gi, Ti
- Bottom bar: Done

Annotations with arrows pointing to specific keys:

- Display: This display numeric is stored. Touch correction to numeric is possible. If it is blank, nothing is stored.
- CL: Clear numerical input.
- : Delete last 1 character.
- +/-: Reverses the plus/minus sign of a numeric. Repeat pushing until a desired plus/minus combination to change the sign of the exponent.
- e: It is the start sign of the exponent part.
- Ki, Mi, Gi, Ti: Bottom line 4 keys are binary prefix (the value of  $1024 \wedge \text{natural number}$ ). If you need to input higher value prefix, input Ti. And change it to your purpose by calculation sheet operation.
- Done: Finish numeric input and **quit**.

# System Settings



Positional notation base value.

### Separator location

- : 1234567890.
- 3-3-3 : 1,234,567,890.
- 4-4-4 : 12,3456,7890.

The choice of negative number and exponent indication. From left side, "Negative sign/No exponent", "Complement/No exponent", and "Negative sign/With exponent". Complement position works at only base 2/8/16.

2 sets same selectors are available and switching is possible by buttons on calculation sheets. (Refer to P.3)

### Decimal point/separator type

- Blank: default of the unit
- , : 1,234,567,890.
- ., : 1.234.567.890,
- . : 1 234 567 890.
- , : 1 234 567 890,
- ' : 1'234'567'890.

\* Always full digit and round down display.

Done Finish this setting screen and quit.

**Reset:** Use it only when you want to initialize this application.

**Reload button:** Return to the situation this application starts.

## Notes



You can convert a value to the binary prefix value on a multiplication sheet like the right.

(In the example,  $1.2345678e24 = 1.021210549Yi$ )

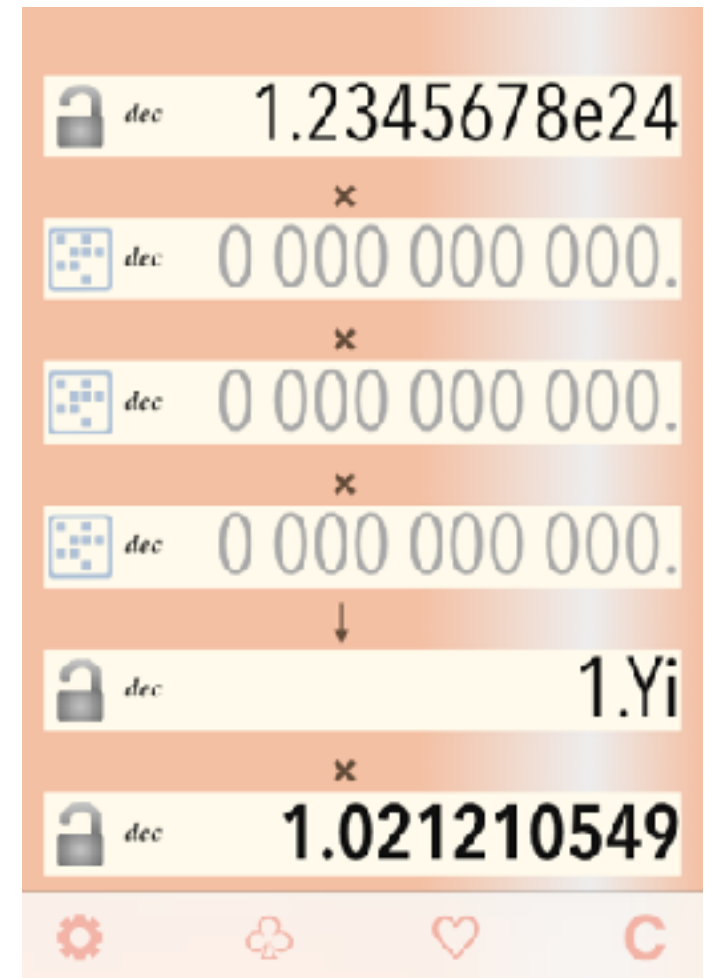
### About complement

Higher digits of negative numeric complement (0xFF... in the case of hexadecimal) are omitted.

The left figure is an example when a negative result numeric is displayed by complement.

It is from two following reasons.

- Decimal fraction part exceeds the display digits and isn't shown in the logical calculus if higher digits are filled. (I judged such logical calculus exists in practical use)
- 0xFF.. continues eternally in the true value. Displayed value is not equal to the true in any case.



## Attached calculations in this Application

This application is specialized to positional notation (Hexadecimal, Binary, etc...) calculation.  
By scrolling right and left, you can switch the sheet to other sheet.

1. Logic and Binary conversion 2 sheets

hex	26.
OR	
hex	C5.
↓	
hex	E7.
dec	1 000 000 000.
↓	bin
bin	1.1101 1 100 1101 0110 0101e11101

hex	100.
NAND	
hex	111.
↓	
hex	EFF.
dec	1 000 000 000.
↓	bin
hex	1.DCD6 5p29

2. Addition/Proportion

By scrolling up and down, you can switch to other calculation in the sheet.

hex	1.
+	
hex	2.
+	
hex	4.
+	
hex	100.
+	
hex	200.
↓	
hex	307.

hex	1.
+	
hex	2.
+	
hex	8.
↓	
dec	6.
+	
hex	3.
+	
hex	2.

hex	1.
+	
hex	2.
+	
hex	4.
+	
dec	8.
↓	
hex	3.
+	
hex	C.

hex	1.
:	
hex	2.
:	
hex	8.
↓	
hex	6.
:	
hex	C.
:	
hex	30.



### 3. Multiplication

By scrolling up and down, you can switch to other calculation in the sheet.

A vertical stack of calculator buttons. From top to bottom: a padlock icon, the number 2, a multiplication symbol (×), the number 3, a multiplication symbol (×), the number 4, a multiplication symbol (×), the number 6, a multiplication symbol (×), the number 8, a downward arrow (↓), and the result 480.

A vertical stack of calculator buttons. From top to bottom: a padlock icon, the number 2, a multiplication symbol (×), the number 3, a multiplication symbol (×), the number 4, a division symbol (÷), the number 6, a multiplication symbol (×), the number 8, a multiplication symbol (×), and the result 0.8.

A vertical stack of calculator buttons. From top to bottom: a padlock icon, the number 2, a multiplication symbol (×), the number 3, a multiplication symbol (×), the number 4, a multiplication symbol (×), the number 6, a downward arrow (↓), the number 8, a multiplication symbol (×), and the result 12.

### 4. Total calculation (2items)

A vertical stack of calculator buttons. From top to bottom: a padlock icon, the number 2, a multiplication symbol (×), the number 3, a plus sign (+), the number 4, a multiplication symbol (×), the number 5, a downward arrow (↓), and the result 1A.

## **Modification history**

### **Modifications → Ver1.4.0**

- iOS8/9 adaptation.
  - Rise Landscape view to basic function (+ i-Pad multitask).
  - Handoff.
- Add binary exponential number hexadecimal form display (printf() %a)
- Add ratio calculation.
- The function after tweet changes. (Left-handed keyboard and customize of guidance.)
- Right/left operations on numeric change to delete/insert.
- Touch operation on keyboard numeric is allowed.
- Improvement of some operation.
- Bug fix of division (In some range over error case, wrong value was shown.)
- Some bug fix.

### **Modifications → Ver1.4.1**

- Arabic/Hebrew label message.
- iPad Pro icon
- Some improvement of usability.

### **Modifications → Ver1.4.2**

- Bug fix when numeric base at Copy/Paste doesn't match.
- Detailed operation upgrade.

### **Modifications → Ver1.4.3**

- Bug fix of Ver.1.4.2 - Decimal keyboard doesn't work.

### **Modifications → Ver1.5**

- Delete twitter button because iOS11 or after doesn't support it.
- iPhoneX/XR/XS display.
- Adjustment of operator label location.
- Bug fix of wrong keyboard label case.
- Bug fix of number length limit in large binary keyboard.
- Correction of +/- reverse key motion in exponent part.