

Radix Leaf (Application for Android 6.0 or over)

Operation manual Ver. 1.0 (2020/ 5/21)

At the beginning: This application's characteristics are: number change by "direct touch to number" and automatic calculation of result. No explanation is necessary for basic calculations, I think. This manual includes only the minimum functional description.

Attention: 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.

I have developed and checked this application with Visual studio/Xamarin/Android emulator and confirmed actual unit operation only with Android 9.0. I follow rule of Android, and I have corresponded and checked different screen resolution, so I believes it works on any models without a problem, but I can't guarantee. If you encounter this application's trouble, I wish you to inform me it with as much as possible detailed information like equipment specs, etc.

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Attached calculations in this Application

This application is specialized to positional notation system calculation (Hexadecimal, Binary, etc...). It has 5 sheets. By scrolling right or left (Touch dark color behind and move right or left), you can switch to another sheet.

1. Logic and Binary conversion 2 sheets
For multiple use purpose, each sheet wears different color.
These do the same calculation.

By scrolling up or down (Touch dark color behind and move up or down), you can switch another calculation on the sheet.
(Addition/Proportion & Multiplication sheet)

Thin color squares are either number input field or calculation result field. You can switch these by touch.
(P.8)

3. Multiplication

Two vertical calculator screens showing a sequence of multiplication operations. The top screen shows the calculation of 480 by multiplying 2, 3, 4, 6, and 8 in sequence. The bottom screen shows the calculation of 0.8 by multiplying 2, 3, 4, 6, and 8 in sequence, with a division operation (indicated by a downward arrow) before the final result.

A vertical calculator screen showing a sequence of multiplication operations. The numbers 2, 3, 4, 6, and 8 are multiplied in sequence to reach the final result of 12.

4. Total calculation (2items)

A vertical calculator screen showing a sequence of operations. It starts with 2 multiplied by 3 to get 6, then 6 plus 4 to get 10, then 10 multiplied by 5 to get 50, and finally 50 divided by 5 to get the final result of 10.

Depending on window size, following items are set up.
Display length 10-digits or 14-digits, 1 sheet or 2 sheets pair,
and vertical or horizontal.

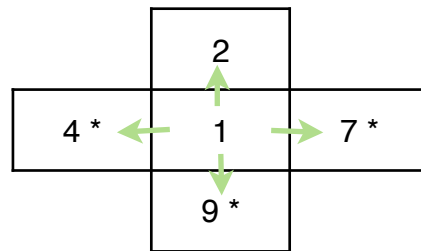
Number Input

There are 3 ways to input number. (①Touch to number itself ②Copy/Paste ③Software keyboard)

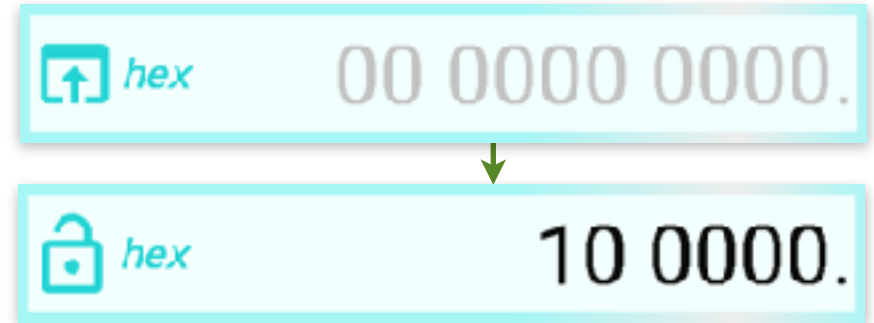
① Touch to number itself

In number input field, if it is initial state, input guide is dimmed.
(Right figure)

Touch directly the digit of the guide, the most significant digit of number you want to input. The digit changes to below table number depending on following action. (Release without move/Up/Down/Right/Left)
Operate slowly. Stop a moment after touching and then move.



* mark values are base 10 case and differ by radix number.

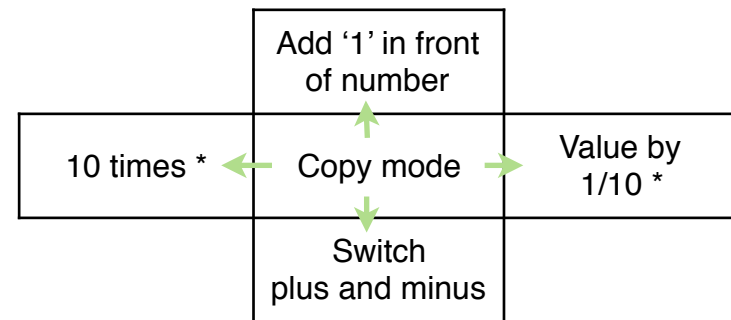
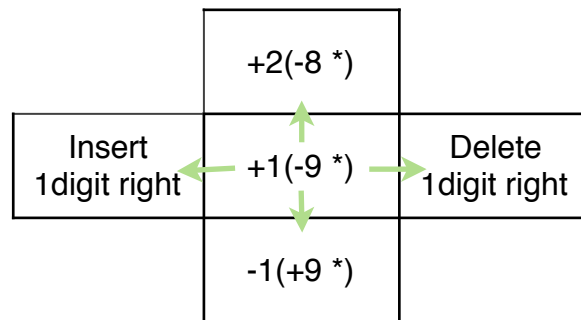


Adjust to aimed number by similar repeated touch actions to each digit.

After this, motion differs depending on whether on blank or on number, and following action. (Release without move/Up/Down/Right/Left)

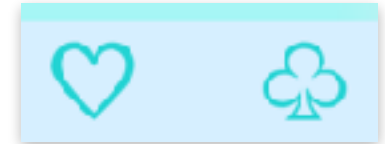
On number, below left table operations work. Only when moving up or down, continuous operation works, to adjust the value.

On blank, below right table operations work.



② Copy/Paste

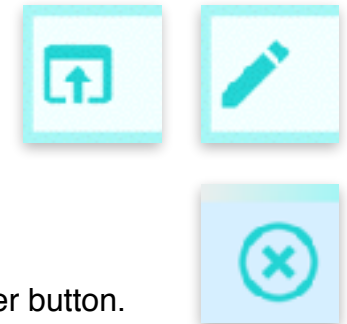
- (1) Touch and release on blank in front of the number you want to copy. Its color turns to thin.
- (2) Touch and release in destination number input field. The value (1) is pasted.
Or touch again on the same (1). The value is stored in clipboard.
- (3) By a touch on blank in front of input guide, the value in clipboard is pasted.
In copy/paste operation, memory button (Right figure, bottom of sheet) is possible to use instead of number.
When memory holds a value, the symbol is filled.



- (4) **Copy/Paste of whole sheet:** Touch and release without move on dark color behind. Select from appearing popup menu.
(Selector is shown in the case only it works.)
By copy choice, whole sheet text is stored in clipboard. By paste choice on another sheet, the clipboard content is recalled on it.
And you can paste it into different application like Spreadsheet, E-mail.

③ Software keyboard

Keyboard (P.7) appears by touch to the left side button (Either of right figure) in the number field.



* Clear of number

By touch to the eraser button (Right figure, bottom right of sheet), whole sheet on screen is cleared.
As a prevention of calculation loss by miss touch, it doesn't work by short touch.
Memories are held in this sheet clear action.
When you want to clear only one number or a memory, select it by the Copy/Paste(1) operation, and touch eraser button.

Keyboard

9 keyboards (those vary by base number and input field size) are equipped. Suitable keyboard is automatically selected corresponding to the content. (Below is base 10 keyboard)

← Label of the inputting number.

1.234 56Mi ← This displaying number is stored. Touch correction to number is possible. You can change prefix by touch and following action (Release without move/Up/Down). If it is blank, nothing is stored.

7 8 9 × ← Clear inputted number. It doesn't work by short touch.

4 5 6 ← Delete last 1 character.

1 2 3 +/- ← Switch plus and minus. Repeat touching until a desired plus/minus combination to change the sign of the exponent.

0 00 • e ← It is the start sign of the exponent part. (In hexadecimal expression of binary, 'p' is used.)

Ki Mi Gi Ti ← Bottom 4 keys are binary prefix (the value of 1024^{\wedge} natural number). If you need to input higher value prefix, input Ti temporarily. And change it to your purpose by touch to prefix.

✓ ← Finish number input and **quit** this sheet.

Other operations

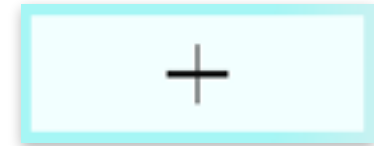
* Selector

2 thin colored small squares in the logic and binary conversion sheet are selectors.

You can choose from the defined contents by touch and following action (Release without move/Up/Down).

Operators can be selected.

Only when lower side selector shows “bin”, bottom square becomes big and 4 times longer binary and hexadecimal expression of binary are available.



* Switch base number

On second place from left side, base number button (Right figure) is displayed in both input number field and calculation result field. 2 base numbers can be switched by touch to this. Value is converted depending on the base.

Basically 2 base numbers in settings (P.10) are switched.

In logic and binary conversion sheet bottom large square (It appears at “bin” selection), long binary and hexadecimal expression of binary (C-language printf “%a”) are switched.



* Calculation result field

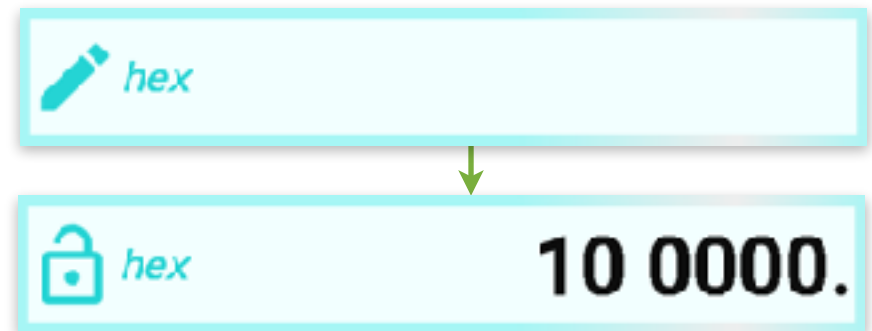
In calculation result field, before calculation, blank is displayed (Right figure).

At the time inputted number amount reaches to the possible level, the calculation is automatically done and the result is displayed when it is in the range.

The calculation result is rounded down and displayed in thick.

Touch to calculation result field, regardless of which blank or result, changes it to number input field.

(However, there are cases logically impossible. Neither software keyboard nor lock button works in the situation.)

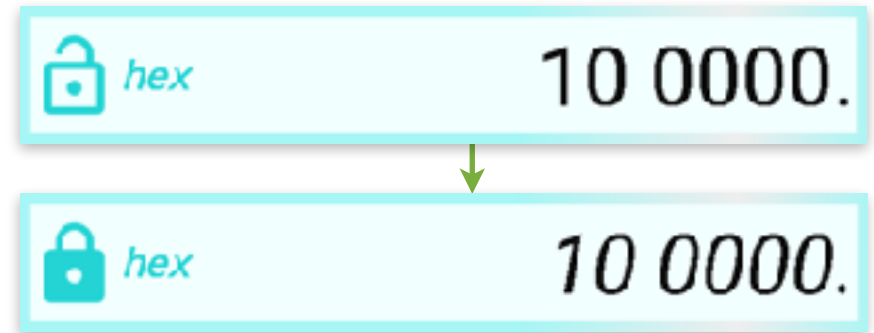


*** Lock of number**

Lock button is shown left side of both number inputted and calculated (Right figure). The number is locked by touch to the button.

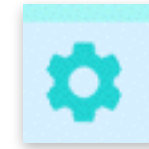
The value is held while locking. However, it changes by reset or reload operation (P.10).

Re-touch to lock button releases this lock state. As a prevention of value change by miss touch, it doesn't work by short touch.

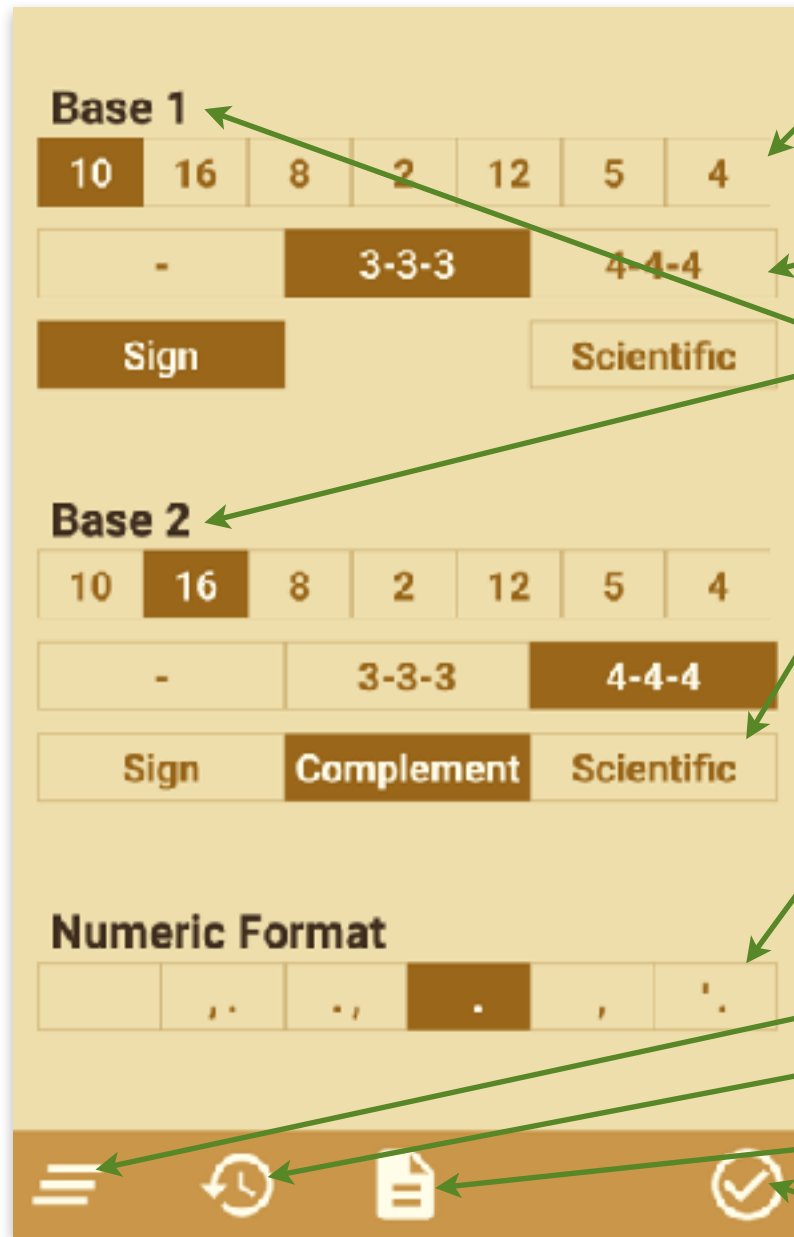


*** Setting change**

Settings sheet (P.10) appears by touch to the gear button (Right figure, bottom left of sheet).



Settings



Positional notation, base number.

Separator location

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

2 sets same selectors are available and switching is possible by buttons on calculation sheets. (P.8)

※ Always full digit (Until 10 or 14 digits) and round down display.

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 exists only at base 2/4/8/16.

Decimal point/Separator character

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.

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

Reload the situation this application started. It doesn't work by short touch.

Show this manual. (The reload situation is updated.)

Finish these settings and **quit** this sheet.

Peculiar spec

Calculator interface showing a sequence of operations:

- Input: 1.25 (dec)
- Operation: **OR**
- Input: $-3.$ (dec)
- Result: $D.4$ (hex)
- Operation: **NOT**
- Input: $1.$ (dec)
- Result: $E.$ (hex)

About complement

Higher digits of complement (0xFF... in the case of hexadecimal) are omitted. The left figure is an example when negative results are 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 is necessary in practical use)
- In the true value, 0xFF... continues eternally. Anyway, displayed value is not equal to the true value.

Calculator interface showing a multiplication sequence:

- Input: $1.234\ 567\ 8e24$ (dec)
- Operation: *****
- Input: $0\ 000\ 000\ 000.$ (dec)
- Operation: *****
- Input: $0\ 000\ 000\ 000.$ (dec)
- Operation: *****
- Input: $0\ 000\ 000\ 000.$ (dec)
- Operation: *****
- Result: $1.Yi$ (dec)
- Operation: *****
- Input: $1.021\ 210\ 549$ (dec)
- Result: $1.021\ 210\ 549$ (dec)

You can convert a value to the binary prefix value on a multiplication sheet like the right.
(In the example, $1.2345678e24 = 1.021210549Yi$)

Modification history