

# Dark Time of Money (Application for Android 6.0 or over)

## Operation manual Ver. 1.0 (2020/ 5/20)

**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.

## **Contents**

- P.3 Attached calculations in this Application
- P.5 Number input
- P.7 Keyboard
- P.8 'Time value of money' sheet
- P.9 Other operations
- P.10 Settings
- P.11 Calculation hint
- P.12 Modification history

## Attached calculations in this Application

This application is specialized to 'Time value of money' calculation. 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. 'Time value of money' 3 sheets

For multiple use purpose, each sheet wears different color. These do the same calculation.

Present Value (Savings)		
Present Value	-10,000.00	
Interest Rate(%) / Year	5.00	
Deposit	-100.00	
Number of Years	10.	
Future Value (Receive)	31,998.32	
Interest / Year	Deposit / Year	Deposit at
12	12	End

Present Value (Loan)		
Present Value	10,000.00	
Interest Rate(%) / Year	10.00	
Payment	-96.50	
Number of Years	20.	
Future Value (Left)	0.00	
Interest / Year	Payment / Year	Payment at
12	12	End

Present Value (Annuity)		
Present Value	-72,124.37	
Interest Rate(%) / Period	3.00	
Withdrawal	400.00	
Number of Periods	20.	
Future Value (Left)	0.00	
Interest / Period	Withdrawal / Period	Withdrawal at
12	12	End

Present Value (Savings)		
Present Value	-10,000.00	
Interest Rate(%) / Period	5.00	
Deposit	-100.00	
Number of Periods	10.	
Future Value (Receive)	31,998.32	
Interest / Period	Deposit / Period	Deposit at
12	12	End

Present Value		
Present Value	4.55	
Interest Rate(%) / Period	8.00	
Payment	0.00	
Number of Periods	100.	
Future Value	-10,000.00	
Interest / Period	Payment / Period	Payment at
1	1	End

By scrolling up or down (Touch dark color behind and move up or down), you can switch to another guidance (4 kinds \* 2 [year or period]) on the sheet. ('Time value of money' sheet only) Thin color squares are either number input field or calculation result field. You can switch these by touch. (P.8)

## 2. Fees calculation

Fees Excluded	<b>1,080.00</b>
Fees Included	<b>1,200.00</b>
Fees	<b>120.00</b>
Fees Rate (/Fees In. %)	<b>10.00</b>

## 3. Total calculation (2 items)

Price1	<b>9.00</b>
Amount1	<b>18.</b>
Price2	<b>4.00</b>
Amount2	<b>12.</b>
Total	<b>210.00</b>

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.

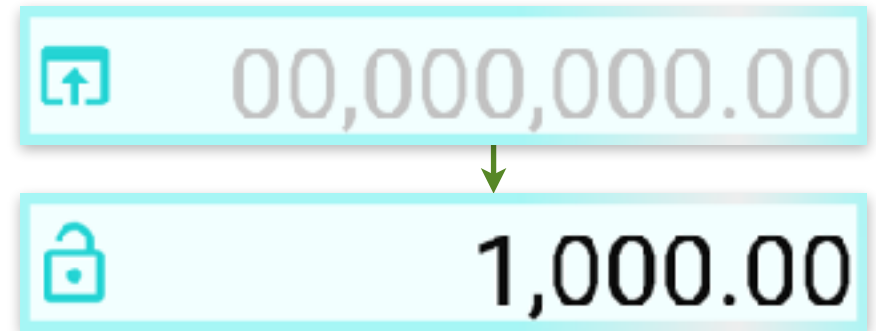
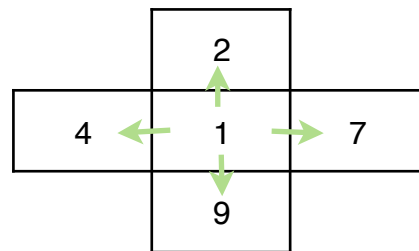
## Number Input

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

### ① Touch to number itself

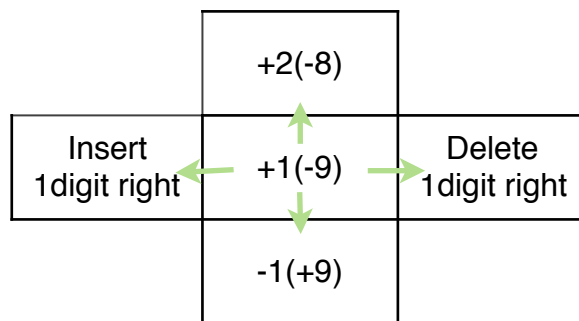
In number input field, if it is initial state, input guide is dimmed.  
(Right figure)

**Touch directly** the digit in 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.

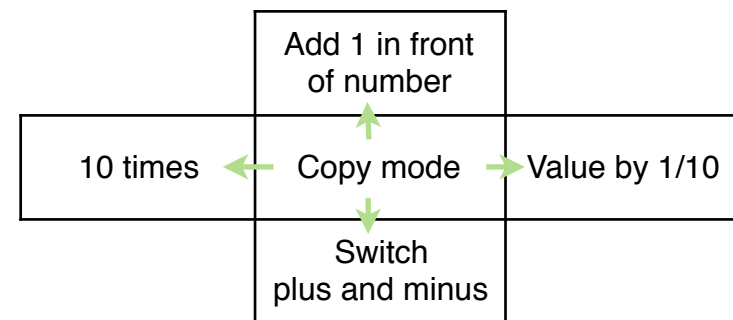


Adjust to aimed number by similar repeated touch actions to each digit.

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 for adjusting the value.

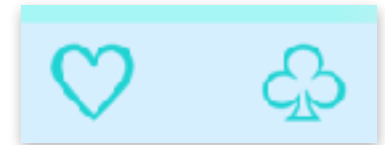


**On blank**, below right table operations work.



## 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. The value is rounded following the settings (P.10).  
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 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

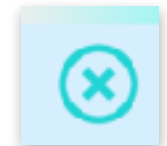
Keyboard (P.7) appears by touch to the left side button (Either of right figure) in the number field.



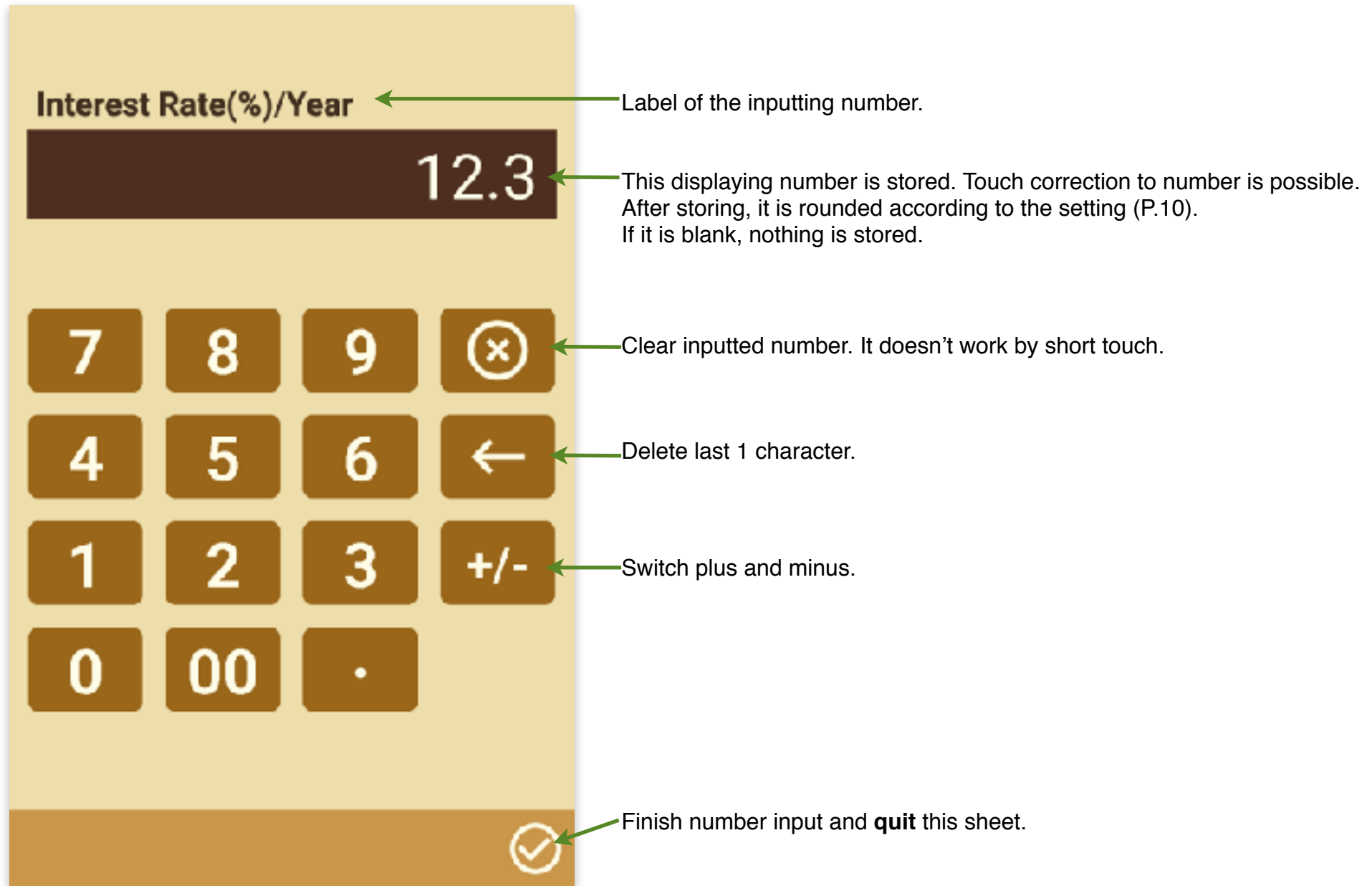
### \* Clear of number

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



## 'Time value of money' sheet

The image shows a financial calculator interface with several input fields and a result field. Each field has a lock icon on the left. The fields are: Present Value (Savings) with value -100,000.00; Interest Rate(%)/Year with value 1.20; Deposit with value 0.00; Number of Years with value 180./365; and Future Value (Receive) with value 100,591.78. At the bottom, there are three selector buttons: Interest/Year (0), Deposit/Year (365), and Deposit at (End). Green arrows point from text explanations to specific fields and buttons.

Present Value (Savings)	-100,000.00
Interest Rate(%)/Year	1.20
Deposit	0.00
Number of Years	180./365
Future Value (Receive)	100,591.78
Interest/Year	0
Deposit/Year	365
Deposit at	End

This page explanation is necessary point to keep in mind compared with the general financial calculator.

Enter outgo money to the financial institution with negative, and income money from it with positive. Calculation result display also follows the rule. (Switch sign by touch down to previous blank of number.)

Mainly in the interest rate, there are cases calculation is terminated even if there is solution mathematically. The value is judged no meaning. (In order to avoid unresponsive situation)

This application demands number of years, instead of number of periods in general financial calculator. (Change label to periods is possible.)

If the known number is the number of periods, or if the number of periods is necessary as result, this button convert the value to fraction. However, since fraction display is used only convenience of this situation, it becomes decimal at copy/paste of the sheet, or at next launch of this app. If you want to see fraction form again, you have to set it the result field and press this button.

### \* Selector

Thin color three squares of sheet bottom are selectors. You can choose by the touch (up or down) from the defined contents.

When it is 0, simple interest calculation is done. Otherwise, compound interest calculation.



## Other operations

### \* 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 according to the setting (P.10) 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

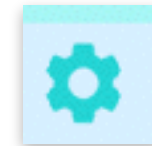
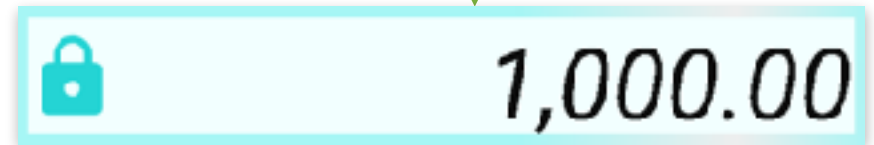
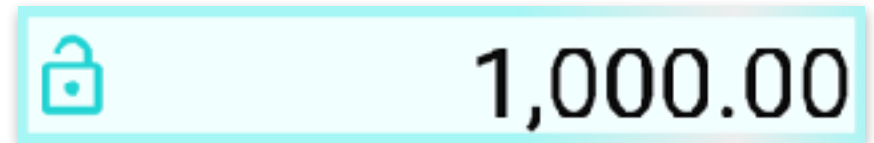
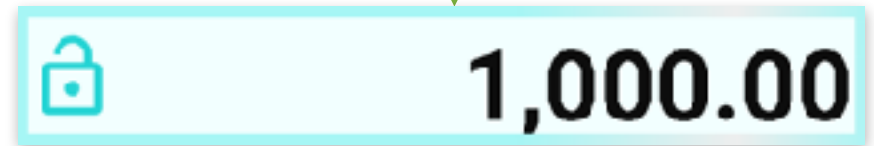
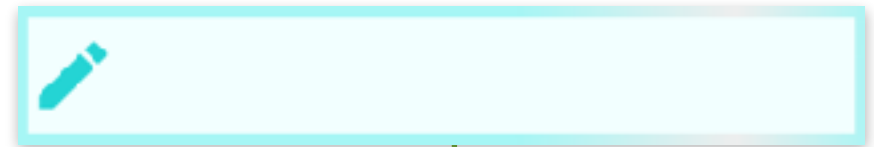
Lock button is shown left side of both number inputted and calculated (Right figure). The number is locked by touch to the button.

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

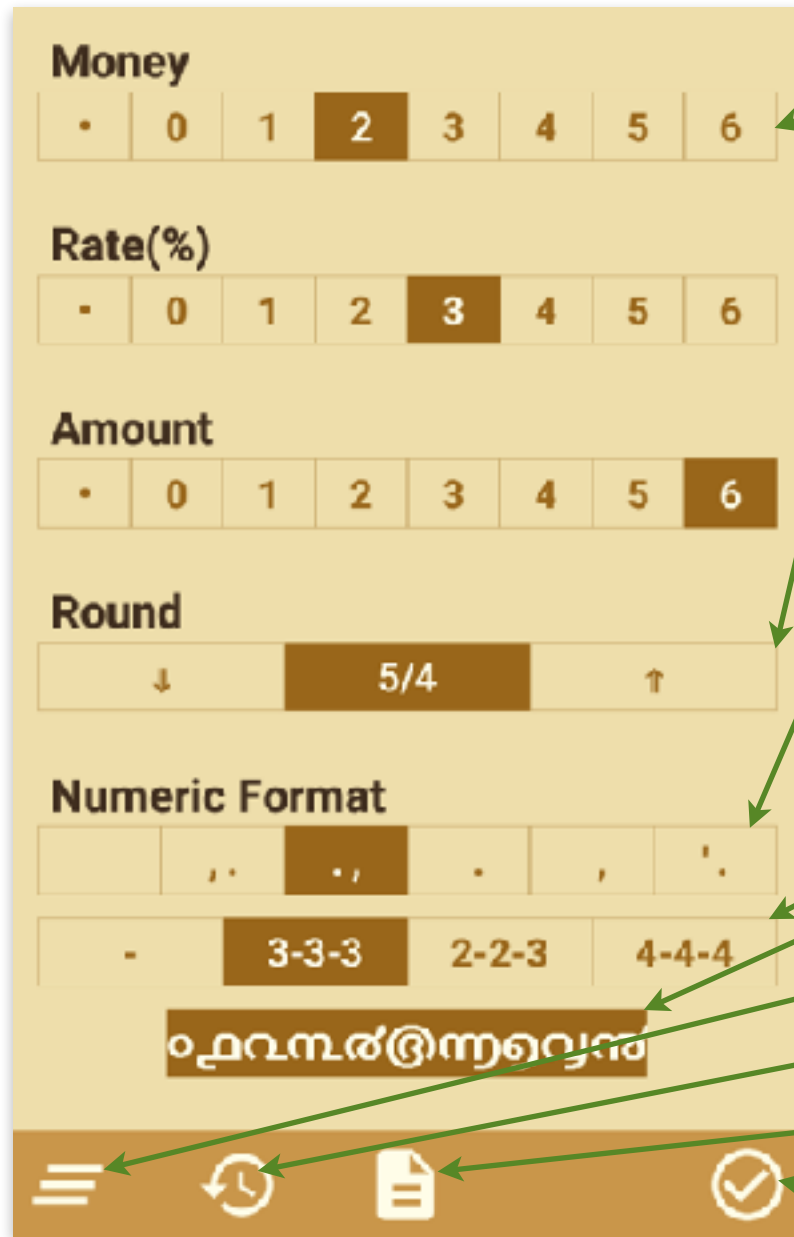
Re-touch to lock button releases this lock state. As a prevention of value change by miss touch, it doesn't work by short touch.

### \* Setting change

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



# Settings



Number is classified 3 kinds (Money/Rate(%)/Amount).  
Choose decimal part length for each. '.' is full digit display.(Until 10 or 14 digits)

**Rounding rule** is same in all numbers. (Round down/Round off/Round up)

**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.

**Separator location**

- : 1234567890.
- 3-3-3 : 1,234,567,890.
- 2-2-3 : 1,23,45,67,890.
- 4-4-4 : 12,3456,7890.

**Number type**

19 type numbers are available and switched by touch.  
(Up/Down)

**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.

## Calculation hint

Total sheet is designed to be able to calculate simple Addition/  
Subtraction/Multiplication/Division.  
Like below examples, input 2 number.

### **Addition/Subtraction**

12+35=47 example.  
(47-35=12, 47-12=35 are input  
result field location difference.)

Price1	12.00
Amount1	00,000,000.00
Price2	35.00
Amount2	00,000,000.00
Total	47.00

### **Multiplication/Division**

420÷12=35 example.  
(35×12=420, 420÷35=12 are input  
result field location difference.)

Price1	35.00
Amount1	12.00
Price2	00,000,000.00
Amount2	00,000,000.00
Total	420.00

% sheet is designed to do simple percent calculation of  
normal calculator.  
Like below examples, input 2 number.

### **Percent-Plus**

120+25%150 example.  
(120×25%30, 30÷25%120 are input  
result field location difference.)

Fees Excluded	150.00
Fees Included	120.00
Fees	-30.00
Fees Rate (/Fees In. %)	-25.00

### **Percent-Minus**

120-25%90 example.  
(120× -25% -30, -30÷ -25%120 are  
input result field location difference.)

Fees Excluded	90.00
Fees Included	120.00
Fees	30.00
Fees Rate (/Fees In. %)	25.00

## **Modification history**