Canon

FN-600

INSTRUCTIONS

ENGLISH

IMPORTANT INFORMATION!
All examples and expressions in this manual are solely on an “as is” basis and are subject to change without notice. We make no express or implied guarantees of this manual content accuracy or regarding the accuracy of the calculation results (including financial calculation simulations) being produced by this calculator, or it’s appropriateness for any commercial purpose or other particular purpose.

We shall not be liable to anyone for special, collateral, incidental, or consequential damages in connection with or arising out of the purchase or use of these materials. Besides, we shall not be liable for any claim of any kind whatsoever against the use of these materials by any other party.

ADVICE AND HANDLING PRECAUTIONS

- This calculator contains precision components such as LSI chips and should not be used in place subject to rapid variations in temperature, excessive humidity dirt or dust, or exposed to direct sunlight.
- Never drop, twist, bend or subject the calculator under force or strong impact. Stored data can be affected.
- When cleaning the device do not use a damp cloth or volatile liquid such as paint thinner. Instead, use only a soft, dry cloth.
- Do not under any circumstances dismantle this device. If you believe that the calculator is not functioning properly, either bring or mail the device together with the guarantee to the service representative of Canon business office.
- Never dispose the calculator improperly such as burning; it can create risks of personal injury or harm. You are suggested to dispose this product according to your national law.
- Do replace the battery once every two years even it is not used frequently.

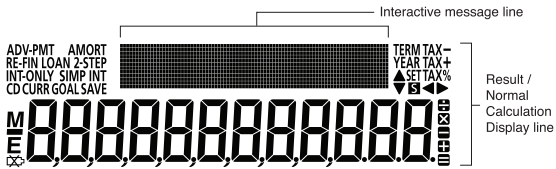
Battery Cautions !
- Keep the battery out of reach of children. If the battery is swallowed, contact a doctor immediately.
- Misuse of battery may cause leakage, explosion, damages or personal injury.
- Don’t recharge or disassemble the battery, it could cause a short circuit.
- Never expose the battery to high temperatures, direct heat, or dispose by incineration.
- Never leave a dead battery in the calculator as the dead battery may leak and cause damage to the calculator.
- Continue using the calculator in the low battery condition may have improper operation or the stored memory may be corrupted or lost completely. Keep the written records of important data all the time; and replace the battery as soon as possible.

CONTENTS

Thank you for purchasing Canon Financial Calculator “FN-600” - Canon new generation two-line display calculator that features with financial calculation functions such as savings, loans, amortization, advance payment and refinancing, currency conversion and many more.

We recommend you to read this user manual and all the important notices before start using FN-600. And please keep this user manual with you for future use.

DISPLAY AND ICONS



ADV-PMT	: Advance payment function mode	(page 30-34)
AMORT	: Amortization function mode	(page 27-29)
RE-FIN	: Refinancing function mode	(page 35-36)
LOAN	: Loan function mode	(page 23-25)
INT-ONLY	: Loan interest-only function mode	(page 26)
2-STEP	: 2-step interest rate type calculation	(page 23-25, 27-36)
SIMP INT SAVE	: Simple interest savings function mode	(page 20)
CD	: Certificate of deposit function mode	(page 16-17)
CURR SAVE	: Currency savings function mode	(page 19-20)
GOAL SAVE	: Goal savings function mode	(page 18)
TERM	: Payment term display	(page 30-33)
YEAR	: Year display	(page 23-25, 27-36)
SET	: Function Set-up menu	(page 5)
S	: Deposit memory (second function Icon)	(page 21-23)
TAX-/ TAX+/ TAX%	: Tax calculation	(page 11)
▲ ▼ ◀ ▶	: Up, Down, Left, Right Direction	
	: Low battery indicator	(page 42)
M	: Independent Memory	(page 11)
E	: Error	(page 10)
+, −, ×, ÷, =	: Basic calculation command sign	(page 11)

TO GET START

Power ON/OFF

■ **First time operation:**

1. Pull out the battery insulation sheet, then the battery will be loaded and the calculator can be powered on.
2. Press the [RESET] button at the back of the calculator by the tip of ball pen or a sharp object to initialize the calculator.

Power ON : When ON CA (Power On/ Clear All) is pressed.
Power OFF : When OFF is pressed.

■ **Auto Power Off function:**
When the calculator is not used for approximate 7 minutes, the calculator will automatically power off.

Display Contrast Adjustment

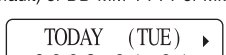
Press ON CA SET-UP, the following display will be shown for LCD contrast adjustment.

Pressing + to make the Display contrast darken.
Pressing − to make the Display contrast lighten.
Pressing ON CA to confirm and clear the screen.
Pressing [RESET] to initialize the LCD contrast.

Date and Clock Display

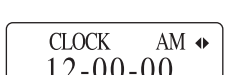
■ **To display the date or clock**

Press ON CA : To view the date and weekday
Press D/M/Y : To select the date format between YYYY-MM-DD (Default) or DD-MM-YYYY or MM-DD-YYYY.



Year – Month – Date (YYYY-MM-DD)

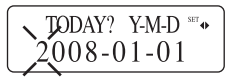
Press ON CA INPUT (or ◄) : To show the clock
Press 12/24 : To select the clock format between 12-hour (HR) or 24-hour (HR).



12-hour format

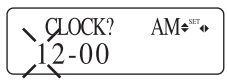
■ Date and Clock Setting

Press ON/CA SET-UP, and then press INPUT for 5 times to "Date" setting screen:



The most left digit is flashing to guide you input the date of today.

Press INPUT (or ▶) to confirm the date and go to "Clock" setting screen:



The most left digit is flashing to let you input the time, use ▲ or ▼ key to select the "AM" or "PM" in 12-hour mode.

Press INPUT (or ▶) to confirm clock & exit set-up menu.

❖ You cannot change the date display format or clock display format by using D/M/Y or 12/24 when you are setting the date or clock.

Set-up menu

Press ON/CA SET-UP : Enter the set-up menu
Press INPUT (or ▶) : Confirm the set-up and go to the next set-up item. (After confirmed at the final set-up page, you will exit set-up menu)
Press ◀ : Go to previous set-up item.
Press ON/CA : Break the operation and exit the set-up menu instantly

Items *Page in sequence*	Item name *<Associated function>*	Input Range	Default value	Details
- CONTRAST +	**LCD contrast** *< All >*	1 to 16 level	8 level	Using −, + to adjust the contrast level
I% PERIOD 1~	**Initial Interest Rate Period** *< Loan, Amortization, Advance Payment, Refinancing >*	1 ~ 98	10	The period of initial interest rate in the 2-step interest rate calculation
1 2 4 12 C/Y	**Number of compounding in a year** *< Certificate of deposit, Goal savings >*	1, 2, 4, 12	12	Select the number by ▲ or ▼ key
Partial PER	**Partial Period** *< Amortization, Advance Payment, Refinancing >*	0 ~ 62	0	irregular type of 1st payment period
YR →1 TERM →2	**Payment period** *< Amortization, Advance Payment, Refinancing >*	1 or 2	1	Select by ▲ or ▼ key. "1" for "Year" input method "2" for "Term" input method.

TODAY?	**Date of Today** *< Date and clock >*	Year: 2008-2099 Month: 01 to 12 Day: 01 to 31	2008-01-01 YYYY-MM-DD	Date format can only be changed by D/M/Y key after exit the set-up menu.
CLOCK?	**Clock time** *< Date and clock >*	**12-hour mode** Hour: 01 to 12 Minute: 00 to 59 **24-hour mode** Hour: 00 to 23 Minute: 00 to 59	12-hour Mode 12:00 AM	Press ▲ or ▼ key to select "AM" or "PM" in 12 hour format. Clock display format can only be changed by 12/24 key after exit the set-up menu.

Initialize the calculator

When you are not sure the current calculator setting, you are recommended to initialize the calculator (all function setting, Independent memory, Tax rate, key in value, Deposit memory, LCD contrast, Date & clock) to default value by pressing [RESET] button at the back of the calculator.

RESET

Display message and calculation range summary

Calculation accuracy, Calculation range

- Accuracy*: As a rule, accuracy is ± 1 at the 12th digit for a single calculation. Errors are cumulative in the case of consecutive calculation.
- Financial calculation internal digits: Up to 16 digit
- Input should be positive decimal number or integer (or according to following table)
- Output range are between 0 to 999 999 999 999 (or according to function conditions)

Function	Display Message	Description	Calculation Range
Certificate of deposit	PV	Certificate of deposit amount at the beginning time	0<PV≦999 999 999 999
	I%	Interest rate (Compound interest)	0.001≦I%≦200
	MTHS	Number of months in the saving period	1≦MTHS≦1200
	AMT	Amount at maturity	0<AMT≦999 999 999 999
	INT	Interest amount	
Goal savings	PMT	Monthly payments	0<PMT≦999 999 999 999
	I%	Interest rate (Compound interest)	0.001≦I%≦200
	MTHS	Number of months in the saving period	1≦MTHS≦1200
	AMT	Amount at maturity	0<AMT≦999 999 999 999
	INT	Interest amount	

Function	Display Message	Description	Calculation Range
Currency savings	TTS	Telegraphic Transfer Selling rate at the beginning time	0<TTS≦999 999 999 999
	TTB	Telegraphic Transfer buying rate at the end	0<TTB≦999 999 999 999
	PV	Local currency savings amount at the beginning time.	0<PV≦999 999 999 999
	I%	Interest rate (Simple Interest)	0.001≦I%≦200
	Day Mode	Day mode selection	360 or 365 only (integer only)
	DAYS	Number of Days	1≦Days≦999 999 999 999
	AMT	Amount at maturity	0<AMT≦999 999 999 999
	Break Even	Break even point on TTB	
Simple Interest savings	PV	Savings amount at the beginning time	0<PV≦999 999 999 999
	I%	Interest rate (Simple Interest)	0.001≦I%≦200
	Day Mode	Day mode selection	360 or 365 only (integer only)
	DAYS	Number of Days	1≦Days≦999 999 999 999
	AMT	Amount at maturity	0<AMT≦999 999 999 999
	INT	Interest amount	
Deposit memory	TTL PV	Total deposit amount at the beginnig time	
	TTL AMT	Total deposit amount at the maturity	
LOAN calculation	FIX→1 2SP→2	Fix interest rate or 2-Step interest rate selection	1 or 2 (integer only)
	Loan AMT	Loan amount at the beginning	0<PV≦999 999 999 999
	I%	Loan interest rate	0.001≦I%≦200
	MTHS	Number of months in loan period	1≦MTHS≦1200
	PMT	Monthly payment	0<PMT≦999 999 999 999
	TTL PMT	Total payment amount	0<AMT≦999 999 999 999
	TTL INT	Total interest amount	
Loan even payment 2-step (fix/2 step interest rate)	I% ~10	Loan interest rate **before** n^{th} year (initial step)	0.001≦I%1≦200
	I% 11~	Loan interest rate **after** n^{th} year (2nd step)	0.001≦I%2≦200
	PMT ~10	Monthly payment **before** n^{th} year	0<PMT1≦999 999 999 999
	PMT 11~	Monthly payment **after** n^{th} year	0<PMT2≦999 999 999 999

Function	Display Message	Description	Calculation Range
Loan interest-only	MTH(INT	Number of month in the interest-only period	1≦MTH(INT≦1200 (Integer input)
	PMT(INT	Monthly payment in interest-only period	
	PMT	Monthly payment after interest-only period	
Amortization	PMT#1 MTH	The 1st monthly payment (Date Input Method)	1901-01 ~ 2099-12 (Integer only)
	CAL on	Calculate on (Year-Month) (Date Input Method)	1901-01 ~ 2099-12 (Integer only) (Number of months between PMT#1 MTH and CAL on cannot larger than MTHS)
	#Nth PMT	Target payment tern for calculate (Payment tern Input Method)	1~1200 (Integer only) (The input value cannot larger than MTHS)
	INT Part	Interest part of monthly payment	
	PRN Part	Principal part of monthly payment	
	BAL	Balance after that payment	
Advance payment – period shorten	[1] Period ST	Period shorten	
	[2] PMT SAV	Payment savings	
	[3] RE-FIN	Refinancing	
	Unpaid PRN	Unpaid principal at the beginning of the month or payment term to calculate	
	PLN AdvPMT	The advance payment amount you plan to pay	0<PLN AdvPMT≦999 999 999 999 (The input value cannot larger than unpaid PRN)
	AdvPMT 123	The amount to be paid as Advance Payment *(123 is the example showing number of payment terms to be shorten)*	
	INT SAV	Total interest amount savings after advance payment	
	BAL(NEW	The balance after advance payment	
Advance payment – payment savings (fix interest rate)	PMT(NEW	New monthly payment after advance payment	
	PMT(SAV	Monthly payment savings after advance payment	

Function	Display Message	Description	Calculation Range
Advance payment – payment savings (2-step interest rate	PMT(NEW ~10	New monthly payment **before** n^{th} year after advance payment	
	PMT(SAV ~10	Monthly payment savings **before** n^{th} year after advance payment	
	PMT(NEW 11~	New monthly payment **after** n^{th} year after advance payment	
	PMT(SAV 11~	Monthly payment savings **after** n^{th} year after advance payment	
Refinancing	ΣPMT REM	Sum of remaining payment amount from the calculation month till the loan maturity	
	N)Loan AMT	Loan amount (monthly part) at the beginning of the New loan	0<New PV≦999 999 999 999
	N)I%	Interest rate of New loan	0.001<New I%≦200
	N)MTHS	Number of month in new loan period	1≦ no. of Mths ≦1200 (integer only)
	PMT(NEW	New monthly payment in new loan	
	TTL PMT(NEW	New Loan's Total payment amount	
	O)ΣPMT REM	Old loan's Sum of remaining payment amount from the calculation month till the loan maturity	The value is same as ΣPMT REM
	ΣPMT DIFF	The difference between old & new loan's total payment amount	TTL PMT (New -o) ΣPMT REM
	Other Cost	Other costs for refinancing e.g. administration fee, stamp fee, deposit charge	0≦Cost≦999 999 999 999
	DIFF(Cost	The net difference after paying the other costs	
Currency conversion	LOC CURR	Local currency	0<LOC≦999 999 999 999
	EX RATE	Exchange rate base on local currency to foreign currency	0<EX RATE≦999 999 999 999
	FOR CURR	Exchange currency	0<FOR≦999 999 999 999
Interest rate conversion	EFF%	Effective interest rate	0<EFF%≦999 999 999 999
	N	Number of compounding	0<N≦999 999 999 999
	NOM%	Nominal interest rate	0<NOM%≦999 999 999 999

Function	Display Message	Description	Calculation Range
Day & Clock Display	TODAY (TUE)	Today date & the Weekday	
	CLOCK AM	Clock & Clock display format	
Day & Date Calculation	Day Mode	Day mode selection	360 or 365 only (integer only)
	Date1	Start date	1901-01-01~9999-12-31
	Date2	End date	1901-01-01~9999-12-31
	DAYS	Number of days	-2958098 ~ 2958098 (negative number input is accepted)

* Errors are cumulative and may become large in the case of consecutive calculations.

- In this calculator, some financial calculation mode's input/output registers will be kept after you pressed [INPUT] (or [▶]), it is for your convenient to review or continue use in another financial calculation mode.

Calculator busy message

During busy calculation, the calculator display will show the < PROCESSING! > message.

Overflow function

In the following case, when "E" is display, the keyboard is electronically locked, and further operation is impossible. Pressing [C/C] or [ON/CA] to clear the overflow. The overflow function occur when:

1. The result or the memory content exceeds 12 digits to the left of the decimal point
2. Dividing by "0"
3. Financial input value over the range
4. Financial output value over the range

BASIC CALCULATION

Examples (you can operate in General Calculation mode or financial mode input page):

CALCULATION	OPERATION	DISPLAY
▼ Mixed	ON CA	0.
140–35+22=127	140 − 35 + 22 =	127.
2x 2 3=6	2 × 2 CI/C 3 =	6.
7x9=63	7 × 99 BS =	63.
(2+4)÷3x8.1=16.2	2 + 4 ÷ 3 × 8 • 1 =	16.2
▼ Percentage		
1200x12/100=144	1200 × 12 %±	144.
1200x15/100=180	15 %±	180.
1200+(1200x20%)=1,440	1200 + 20 %±	1,440.
1200−(1200x20%)=960	1200 − 20 %±	960.
▼ Memory	ON CA	0.
3 x 4 = 12	3 × 4 M±	M 12.
−) 6÷0.2 = 30	6 ÷ • 2 M=	M 30.
−18	RM CM	M -18.
+) 200	200 M±	M 200.
182	RM CM	M 182.
Recall memory	RM CM	182.
Clear memory		
▼ Tax (only available in general calculation mode)		
Tax Rate Set		
Tax Rate = 5%	ON CA TAX+ 5 TAX+	5. TAX%
Recall Tax Rate	ON CA TAX−	5. TAX%
Add the Tax Amount		
Price $2,000 without tax	2000	2,000.
Selling price with tax = ($2,100)	TAX+	2,100. TAX+
Tax amount = ($100)	TAX+	100. TAX
Deduct Tax Amount		
Selling price $3,150 with tax	3,150	3,150.
Price without tax = ($3,000)	TAX−	3,000. TAX−
Tax amount = ($150)	TAX−	150. TAX

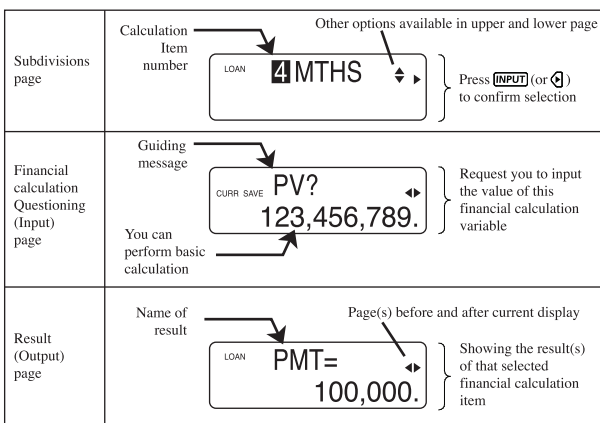
Error are cumulative and may become large in the case of consecutive calculations.

FINANCIAL CALCULATION

Operating in financial calculation

In any of the financial calculation mode, press following keys can execute associated actions:

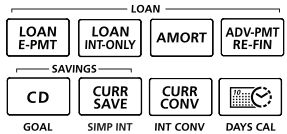
- INPUT (or ▶) : Confirm the display input or selection and go to the next page
- ▶ : Go to previous page
- ▲ or ▼ : Go to upper or lower subdivision/ option page
- C/C : Clear input entry in input page or exit financial calculation mode in subdivision or output page
- ON CA : Break the operation and exit instantly (Machine will keep all input which had been confirmed before you press ON CA key)



In the financial calculation input stage
You can perform basic calculation +, −, ×, ÷, %±, M±, and M= (except "TAX" calculation).

Press = to get the basic calculation result before you press INPUT (or ▶) to confirm the value of financial calculation variable.

Mode selection



The following table shows details of calculation mode:

	Operation	Mode	LCD Icon
SAVINGS	CD	Certificate of deposit calculation mode	CD
	CD CD	Goal savings calculation mode	GOAL SAVE
	CURR SAVE	Currency savings mode	CURR SAVE
	CURR SAVE CURR SAVE	Simple interest savings calculation mode	SIMP INT
LOAN	LOAN E-PMT *1	Loan (even payment) calculation	LOAN
	LOAN INT-ONLY	Loan (interest-only) calculation	LOAN INT-ONLY
	AMORT *1	Amortization calculation	AMORT
	ADV-PMT RE-FIN *1*2	Advance payment calculation	ADV-PMT
	CURR CONV	Currency conversion mode	
	CURR CONV CURR CONV	Interest rate conversion mode	
		Date and clock display mode	
		Days and date calculation mode	

Remark *1

❖ For Loan (even payment), Amortization and Advance payment calculation, there are two type of interest rate:

FIX → 1 : fix interest rate type calculation

2SP → 2 : 2-step interest rate type calculation (2-STEP icon shown)

Press 1 or 2 to select; and press INPUT (or ▶) to confirm.

Remark *2

❖ In the Advance Payment and refinancing calculation, after confirming the type of interest (Fix or 2-Step), you can select one of the following items by ▼ or ▼ key :

1 Period ST – period shorten

2 PMT SAV – payment savings

3 RE-FIN – refinancing (RE-FIN Icon shown)

and then press INPUT (or ▶) to confirm.

Mode divisions and calculation items

The following table shows the associated calculation items of each financial/ calculation mode.
Simply press ▽ or △ key to display the item options and confirm your selection by pressing INPUT (or ▷).

Category	Subdivisions	Manual ref. page	Type of interest	Items to be calculated
Savings	Certificate of deposit	16-17	Compound	1 Amount at maturity
				2 Present value
				3 Interest rate
				4 Number of months
	Goal savings	18	Compound	1 Amount at maturity
				2 Monthly payment
				3 Interest rate
				4 Number of months
	Currency savings	19	Simple	1 Amount at maturity
				2 Present value
				3 Interest rate
				4 Number of Days
				5 Telegraphic Transfer Selling rate - TTS
				6 Telegraphic Transfer Buying rate - TTB
	Simple interest savings	20	Simple	1 Amount at maturity
				2 Present value
				3 Interest rate
				4 Number of Days
Loan	Even payment	24	Fix interest & 2-Step interest	1 Monthly payment amount
				2 Loan amount at beginning
				3 Interest rate
				4 Number of months in loan period
	Interest-only	26	Fix interest	1 Monthly payment amount
				2 Loan amount at beginning
				3 Interest rate
				4 Number of months in loan period
Amortization	– – –	27-29	Fix interest & 2-Step interest	Monthly payment amount
				Interest part of monthly payment
				Principal part of monthly payment
				Balance after payment
				Total payment amount
				Total interest amount

Category	Subdivisions	Manual ref. page	Type of interest	Item to be calculated
Advance Payment	Period shorten	30-33	Fix interest & 2-Step interest	Number of Period Term Shorten
				Interest amount savings
				Balance after advance payment
	Payment savings	33-34	Fix interest & 2-Step interest	New monthly payment
				Monthly payment savings
				Interest amount savings
				Balance after advance payment
Refinancing	Old loan & New loan	35-36	Fix interest & 2-Step interest	Total payment amount
				Total payment amount difference between New & Old loan
				Total payment amount difference between New & Old loan (Include the other costs)
Conversion	Currency conversion	37		1 Foreign currency
				2 Exchange rate
				3 Local currency
	Interest rate conversion	38		1 Effective interest rate
				2 Nominal interest rate
Date & Clock	Date & Clock display	4		Display date of today
				Display current clock time
	Days & Date calculation	39		1 Number of days
				2 DATE1
				3 DATE2

Savings (Deposit) calculation

1. FN-600 provides you four (4) types of savings calculation that assist you to calculate the principle, accumulated savings amount, interest, or duration of a savings (deposit) activity:
   - Certificate of Deposit (CD)
   - Goal savings (GOAL SAVE)
   - Currency savings (CURR SAVE)
   - Simple interest savings (SIMP INT SAVE)

2. The Certificate of Deposit (CD) calculation and Goal savings (GOAL SAVE) calculation are using compound interest calculation; you can select the number of compounding in a year in the set-up menu (Ref. page 5).
   Annual → 1
   Semi-annual → 2
   Quarter → 4
   Monthly →12

3. When calculating in Currency savings (CURR SAVE) or Simple interest savings (SIMP INT SAVE), you need to select the number of days (360 or 365) per year for calculation in the “Day mode?” input page, simply key-in 360 or 365 and press INPUT (or ▶) to confirm.
   Different country have different day mode setting, you can refer the following information.
   365 days: Japan, England, Hong Kong,
   360 days: USA

Certificate of Deposit Calculation CD

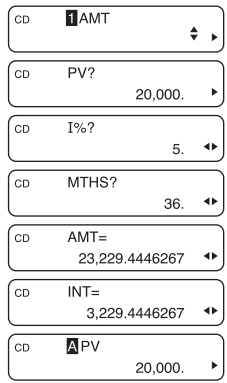
1. **Certificate of Deposit** (CD) is a type of savings account that makes a fixed sum of money to gain an interest in a fixed period of time.

2. You can calculate one of the CD items (variables) after entering CD calculation mode by pressing CD
   1 AMT – Amount at maturity
   2 PV – Present value
   3 I% – Interest rate
   4 MTHS – Number of month(s) in savings period

Pressing ▲ or ▼ key to select the item to be calculated; then, pressing INPUT (or ▶) to confirm and start calculation.

Example 1: You deposit $20,000 into Certificate of Deposit account that pays 5.0% annual interest, compounded monthly (C/Y=12), how much will you have after 3 years (36 MTHS)?

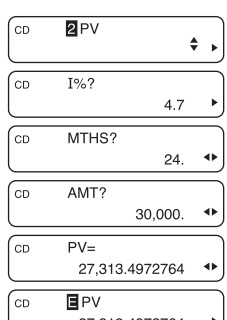
1) *Enter CD mode and display 1st calculation item - Amount at maturity*
   ON/CA CD
2) *Confirm the item (AMT) to be calculated and enter the present value at the beginning of time*
   INPUT (or ▼) 20000
3) *Confirm PV and enter the valve of compound interest rate 5%*
   INPUT 5
4) *Confirm I% is 5 and enter the number of months in the savings period*
   INPUT 36
5) *Display the Amount at maturity*
   INPUT (or ▼)
6) *Display the interest amount*
   INPUT (or ▼)
7) *Store All input & result into deposit memory A*
   DEPOSIT MEM STO A



Answer: You will receive $23,229.4446267 after 3 years.

Example 2: How much money you must deposit if you want to receive $30,000 after 2 years (24 MTHS), 4.7% annual interest rate and compounded monthly (C/Y=12)?

1) *Enter CD mode and select 2 PV ("Present Value" = "Deposit")*
   ON/CA CD ▼
2) *Confirm 2 to calculate PV and then enter Interest rate 4.7%*
   INPUT 4 • 7
3) *Confirm "I%" and enter the duration 24 months*
   INPUT 24
4) *Confirm "MTHS" and enter the amount at maturity: 30,000*
   INPUT 3 00 00
5) *Display the PV = "Deposit" value*
   INPUT (or ▼)
6) *Store All input*
   DEPOSIT MEM STO E



Answer: You need to deposit $27,313.4972764 at the beginning of savings time.

Goal Savings Calculation

GOAL

1. **Goal savings** (GOAL SAVE) is a monthly savings aim at achieving a savings goal.

2. To calculate one of the following items (variable) in Goal savings calculation mode:
   - 1 AMT – Amount at maturity
   - 2 PMT – Monthly installment savings
   - 3 I% – Interest rate
   - 4 MTHS – Number of month(s) in savings period

Pressing ▽ or △ key to select the item to be calculated; then, pressing INPUT (or ▷) to confirm and start calculation.

3. The monthly installment savings of Goal savings calculation should be made at the beginning of each payment month.

Example 1: You invest $500 at the beginning of each month in your savings plan, what will the account balance be after 2 years, if the annual interest of 0.5% compounded monthly (C/Y=12)?

1) *Enter Goal savings mode*
   ON/CA CD CD

   GOAL SAVE 1 AMT ▲▼ ▶

2) *Confirm to calculate Amount at maturity and enter the monthly payment US$ 500*
   INPUT 5 00

   GOAL SAVE PMT? 500. ▶

3) *Confirm the PMT value, enter compound interest rate 0.5%*
   INPUT 0 . 5

   GOAL SAVE I%? 0.5 ◀▶

4) *Enter the number of months in the savings period*
   INPUT 24

   GOAL SAVE MTHS? 24. ◀▶

5) *Confirm MTHS and display the Amount at maturity*
   INPUT (or ▷)

   GOAL SAVE AMT= 12,062.7001111 ◀▶

6) *Display the total Interest Amount at maturity*
   ▷ (or INPUT)

   GOAL SAVE INT= 62.7001111 ◀▶

7) *Store All input & result into deposit memory B*
   DEPOSIT MEM STO B

   GOAL SAVE B PMT 500. ▶

Answer: Your account will receive $12,062.7001111 after 2 years goal savings.

Currency Savings Calculation

CURR SAVE

1. **Currency savings** (CURR SAVE) is based on simple interest rate to gain profit from a high interest rate foreign currency and the difference between Telegraphic Transfer Selling rate (TTS) and Telegraphic Transfer Buying rate (TTB).
2. In currency savings mode, you can calculate one of the following items (variable) by pressing ▼ or ▲ key to select and press INPUT (or ▶) to confirm.
   - 1 AMT – Amount at maturity
   - 2 PV – Present value
   - 3 I% – Interest rate
   - 4 DAYS – Number of days in savings period
   - 5 TTS – TTS at the beginning of time
   - 6 TTB – TTB at the end of time
3. After displaying the result of Amount at maturity, you also can see the break-even point that showing by what TTB value will have no profit and loss.

Example 1: You invest $1,000,000 into foreign savings account for 60 days, the TTS at the beginning of time is 1:116, the TTB at the end of time is 1:120, the annual interest rate the bank given 3.6%. How much will you have after 60days (use 365 day mode)

1) *Enter Currency savings mode*
   ON CA, CURR SAVE

   CURR SAVE 1 AMT ▲▼ ▶

2) *Confirm to calculate Amount at maturity and Input TTS*
   INPUT 116

   CURR SAVE TTS? 116. ▶

3) *Input TTB at the end of time*
   INPUT 120

   CURR SAVE TTB? 120. ◀▶

4) *Input the PV "initial savings amount"*
   INPUT 1 00 00 00

   CURR SAVE PV? 1,000,000. ◀▶

5) INPUT 3 • 6

   CURR SAVE I%? 3.6 ◀▶

6) *Day mode - number of days per year 360 or 365*
   INPUT 365

   CURR SAVE Day Mode? 365. ◀▶

7) *Input the savings period number of days*
   INPUT 60

   CURR SAVE DAYS? 60. ◀▶

8) *Confirm the input and display the Amount at maturity*
   INPUT (or ▶)

   CURR SAVE AMT= 1,040,604.62919 ◀▶

9) *Display the Break-even point value*
   ▶ (or INPUT)

   CURR SAVE Break Even= 115.31757272 ◀▶

10) *Store All input & result into deposit memory C*
    RECALL MEM, STO, C

    CURR SAVE C TTS 116. ▶

Answer: You will have $1,040,604.62919 after 60 days. And the break-even point will be at 115.31757272 TTB.

Simple interest Savings Calculation

SIMP INT

1. Simple interest calculation lets you calculate the interest amount and amount at maturity.

2. Simply press CURR SAVE CURR SAVE enter simple interest savings mode, display options by ▲ (or ▼) key, then press INPUT (or ▶) to confirm one of the following items that you would like to be calculated.
   - 1 AMT – Amount at maturity,
   - 2 PV – Present value,
   - 3 I% – Interest rate,
   - 4 DAYS – Number of days in savings period

Example 1: You deposit $200,000 into savings account for 365 days. The annual interest rate the bank given is 0.2%. How much will you have after 365 days (use 365 day mode)

1) *Enter simple interest savings mode*
   ON CA CURR SAVE CURR SAVE

2) *Select the Amount at maturity calculation item and input the PV amount*
   INPUT 20 00 00

3) *Confirm PV and enter the 0.2% simple interest rate*
   INPUT 0 • 2

4) *Date Mode – number of days per year (360 or 365)*
   INPUT 365

5) *Input the savings period number of days*
   INPUT 365

6) *Display the Amount at maturity*
   INPUT

7) *Display the interest amount*
   ▶

8) *Store All input & result into deposit memory D*
   DEPOSIT MEM STO D

SIMP INT 1 AMT ▲▼ ▶

SIMP INT PV? 200,000. ▶

SIMP INT I%? 0.2 ◀▶

SIMP INT Day Mode? 365. ◀▶

SIMP INT DAYS? 365. ◀▶

SIMP INT AMT= 200,400. ◀▶

SIMP INT INT= 400. ◀▶

SIMP INT D PV 200,000. ▶

Answer: You will have $200,400 after 365 days.

Deposit memory function

1. The **Deposit memory** function [DEPOSIT MEM] allows you to store the input and output value of savings calculations into maximum 5 deposit memories (A, B, C, D, E). It also provides convenient for you to combine 5 memories' value and obtain the summation of total present value or total amount at maturity.

2. You can "Store", "Recall", or "Delete" deposit memories (A ~ E) by:

   - [DEPOSIT MEM] [STO] – To store the input and output of a savings calculation
   - [DEPOSIT MEM] [RCL] – To recall a deposit memory
   - [DEPOSIT MEM] [CLR MEM] – To delete/clear a deposit memory

   and follows with pressing the [A], [B], [C], [D] or [E] key.

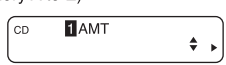
3. To calculate the total present value or total amount at maturity of A to E deposit memories, simply press [DEPOSIT MEM] [TTL AMT].

4. Whenever you press [DEPOSIT MEM], the "S" icon will be shown.

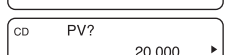
5. The deposit memory function cannot be used when you are in the set-up menu.

Example 1: Store CD values into deposit memory [A]
(Only the output result screen of savings function, you are able to store savings value into deposit memory A to E)

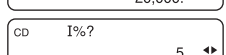
1) [ON CA] [CD]



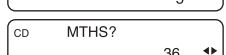
2) [INPUT] 20000



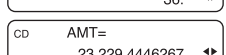
3) [INPUT] 5



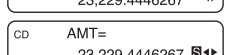
4) [INPUT] 36



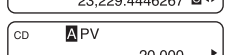
5) *Output result screen*
[INPUT]



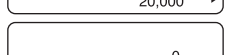
6) *Ready to operate deposit memory function*
[DEPOSIT MEM] [STO] (S Shown)



7) *Store input & result into deposit memory A*
[A]



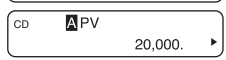
8) *Exit deposit memory function*
[ON CA]



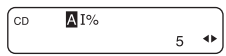
Example 2: Recall the deposit memory A
(You can recall deposit memory A to E in general or financial calculation mode, and when you are reviewing the deposit memory content, you can key in new value for a new savings calculation.)

1) *Ready to recall the deposit memory*
ON/CA DEPOSIT MEM RCL (S Shown)

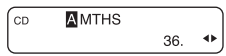
2) *Recall deposit memory A*
A



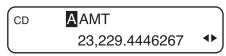
3) *Display the deposit memory A content*
INPUT



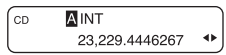
4) INPUT



5) INPUT



6) INPUT



Example 3: Obtain total present value & total amount (AMT) at maturity of all savings. (You can obtain the value in general or financial calculation mode.)

Before you calculate Total PV & AMT, you have to store the savings account records into deposit memories A to D as following:-

Deposit memory	Savings Account	Present value (Yen)	Interest rate	Period		AMT at maturity
A	CD	20,000	5%	36mths		23,229.44
B	GOAL SAVE	500 (monthly)	0.5%	24mths	=	12,062.70
C	CURRENCY SAVE	1,000,000	3.6%	60days	=	1,040,604.
D	SIMP INT SAVE	200,000	0.2%	365days		200,400.

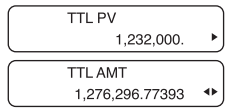
For the Currency savings: TTS: 116 TTB: 120 Day mode: 365 days
For the Certificate of Deposit & Goal savings: C/Y: 12
For the Simple interest savings: Day mode: 365 days

1) *Calculate the total PV and AMT and display total PV*

ON/CA DEPOSIT MEM TTL AMT

2) *To show the total AMT*

INPUT (or ▶)



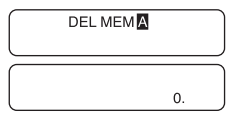
Answer: The total present value is $1,232,000 and the total amount at maturity is $1,276,296.77393

Example 4: Delete the deposit memory A
(You can only delete deposit memory in general calculation mode)

1) *Delete deposit memory A*

ON/CA DEPOSIT MEM CLR MEM A

2) *back to general calculation mode in few seconds*



"No memory!" message will be pop-up to show when no memory data in the deposit memory.

Loan calculation

LOAN E-PMT LOAN INT-ONLY

1. There are two types of Loan calculation this calculator can perform:

   - **Loan Even Payment** LOAN E-PMT – The sum of interest and principle to be paid monthly is same (evenly distributed).
   - **Loan Interest-Only** LOAN INT-ONLY – Pay interest only in fixed term at the beginning period of loan payment. After the interest-only payment period, borrower has to pay the remaining principal balance over the remaining period.

2. In Loan Even Payment LOAN E-PMT calculation, there are two types of interest payment:

   - **Fix interest rate [FIX → 1]** – The interest rate and monthly payment is fixed throughout the loan period.
   - **2-step interest rate [2SP → 2]** – In the initial period, a fixed rate and monthly payment is requested; afterward, the loan balance will be paid by another fixed rate and monthly payment. (Set the initial step period in the set-up menu.)

3. There is only "Fix interest rate" payment method in the Loan Interest-only LOAN INT-ONLY calculation.

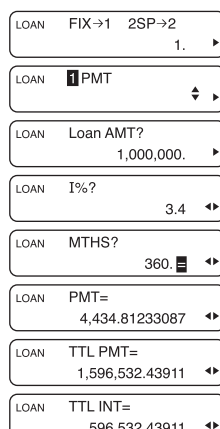
Loan Even Payment calculation (Fix interest rate)

1. Press ON/CA LOAN/I-PMT to enter the Loan even payment calculation mode
2. Press 1 INPUT (or ▶) to select fix interest rate [FIX →1] calculation.
3. In the subdivision menu, you can select one of the followings by pressing ▼ (or ▲) key
   - 1 PMT – Monthly payment,
   - 2 Loan AMT – Loan amount,
   - 3 I% – Interest rate,
   - 4 MTHS – Number of payment month(s) in loan period

and confirm the item to be calculated by pressing INPUT (or ▶) key

Example 1: You want to loan $1,000,000 from the bank that offers you a 30 years fix-rate mortgage at 3.4%, what is your monthly payment?

1) *Enter Loan even payment mode, select fix interest rate type*
   ON/CA LOAN/I-PMT 1
2) *Confirm the category and display the subdivision menu*
   INPUT
3) *Confirm to calculate the payment amount, input the loan amount at the beginning*
   INPUT 1 00 00 00
4) *Input the interest rate*
   INPUT 3 . 4
5) *Input the number of months for the loan payment*
   INPUT 30 × 12 =
6) *Confirm the input and display monthly payment amount*
   INPUT
7) *Display the total monthly payment amount*
   ▶
8) *Display the total interest amount*
   ▶



Answer: This loan needs to have $4,434.81233087 monthly payment. And the total payment amount is $1,596,532.43911

Loan Even Payment calculation (2-step interest rate)

1. Press ON/CA LOAN/I-PMT to enter the Loan even payment calculation mode
2. Press 2 INPUT (or ▶) to select 2-step interest rate [2SP → 2] calculation.
3. In the subdivision menu, you can select one of the followings by pressing ▼ (or ▲) key.

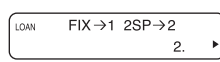
   - 1 PMT – Monthly payment,
   - 2 Loan AMT – Loan amount,
   - 3 I% – Interest rate,
   - 4 MTHS – Number of payment month(s) in loan period

and confirm the item to be calculated by pressing INPUT (or ▶) key.

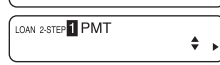
4. Please set the initial interest rate period of 2-step interest rate calculation in the set-up menu.

Example 1: You want to loan $2,800,000 for 30 years, the bank offers you 2.5% annual interest rate for initial ten years; from the 11th and remaining years the annual interest rate will be adjusted to 3.8%. What will be the initial 10-year monthly payment?

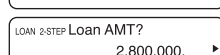
1) ON/CA LOAN/I-PMT 2



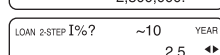
2) *Confirm 2-step interest rate type and display the subdivision menu*
INPUT



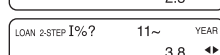
3) INPUT 28 00 00 0



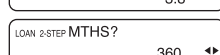
4) *Interest rate of beginning 10years is 2.5%*
INPUT 2 • 5



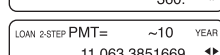
5) *Interest rate of the 11-year after is 3.8%*
INPUT 3 • 8



6) *Input the number of months for the loan payment*
INPUT 360



7) *Confirm the input & display monthly payment of initial 10-year*
INPUT



When you continuous to press INPUT (or ▶) key, it show the

PMT= ~11	: Monthly payment from 11th year
TTL PMT	: Total payment amount
TTL INT	: Total interest amount

Answer: Your monthly payment for the initial 10-year is $11,063.3851669

Loan interest only

1. Press ON/CA (LOAN/INT-ONLY) to enter the Loan interest-only calculation mode
2. The subdivision menu will be shown, select one of the followings by pressing ▼ (or ▲) key and confirm the item to be calculated by pressing INPUT (or ▶) key
   - 1 PMT – Monthly payment
   - 2 Loan AMT – Loan amount
   - 3 I% – Interest rate
   - 4 MTHS – Number of payment month(s) in loan period

Example 1: To loan $8,000,000 for 30 years (360 months), the bank offers you 2.5% annual interest rate and you select the loan interest-only repayment method with 12 months interest-only period. How much will be the interest-only payment and the monthly payment after the interest-only period? And what is the total payment amount?

1) *Enter loan interest-only mode & display subdivisions*
   ON/CA (LOAN/INT-ONLY)

   LOAN INT-ONLY: 1 PMT ▲▼ ▶

2) *Confirm 1 to calculate monthly payment and enter Loan amount*
   INPUT 8 00 00 00

   LOAN INT-ONLY: Loan AMT 8,000,000. ▶

3) INPUT 2 • 5

   LOAN INT-ONLY: I%? 2.5 ◀▶

4) INPUT 360

   LOAN INT-ONLY: MTHS? 360. ◀▶

5) *Input the interest-only period*
   INPUT 12

   LOAN INT-ONLY: MTHS(INT? 12. ◀▶

6) *Display the calculated interest-only payment*
   INPUT

   LOAN INT-ONLY: PMT(INT= 16,666.6666667. ◀▶

7) *Display the monthly payment after interest-only period*
   ▶

   LOAN INT-ONLY: PMT= 32,342.9887824 ◀▶

8) *Display the total payment amount*
   ▶

   LOAN INT-ONLY: TTL PMT= 11,455,360.0963. ◀▶

9) *Display the total interest amount*
   ▶

   LOAN INT-ONLY: TTL INT= 3,455,360.09626. ◀▶

Answer: The interest-only payment is $16,666.6666667, the monthly payment after interest-only period is $32,342.9887824, and the total payment amount is $11,455,260.09626.

Amortization calculation (Fix interest rate) AMORT

1. Amortization calculation AMORT lets you estimate the monthly periodic loan repayment and shows you the payment portion of the principal and interest. You can obtain the calculated items including:
   a – Monthly payment (b + c)
   b – Principal part
   c – Interest part
   d – Remaining balance of all payments (Including current month)
   e – Total payment amount
   f – Total Interest amount

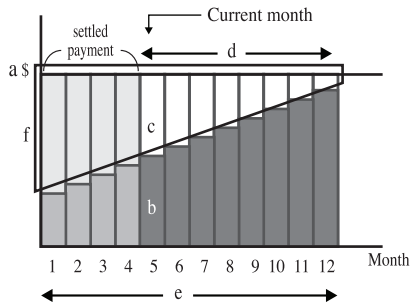


Figure 1

2. The principal & interest amount in each monthly payment varies throughout the term of the amortization (Figure 1); you need to define a particular moment for calculation:
   - Target payment date/date for calculate (display: [CAL on?]) **OR**
   - Target payment term/ the nth payment (display: [#Nth PMT?])

Before starting the amortization, advance payment or refinancing calculation, please go to the set-up menu and select the input method SET-UP ◀ ▶ ◀ ▶:

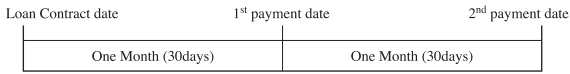
- Date Input mode [YR →1] – Input 1st payment month [PMT#1 MTH?] and target date for calculation [CAL on?]

OR

- Term Input mode [TERM → 2] – Input the target payment term you want to calculate [#Nth PMT?]

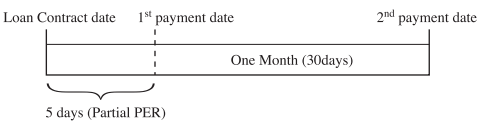
3. Partial Period [Partial PER] calculation
   - In this calculator, each monthly loan repayment period is considered to be 30 days (365 days a year), please reference page 41 for the formulas.
   - Some financial institutions will offer flexibility to customer that 1st payment can be paid before or after the original initial payment date. We call this irregular type of 1st payment period "Partial Period" [Partial PER].

(Scenario 1) 1st payment period is 30 Days (1 month): Partial Period = 0

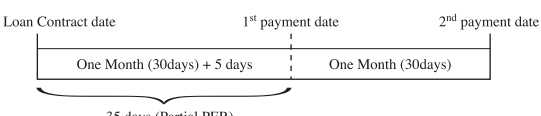


   - Whenever the 1st payment date of loan amortization, Advance payment or refinancing calculation is not 30 days from contract date, you need to input the 1st payment period number of days in the Set-up menu "Partial PER" section.

(Scenario 2) 1st payment period is 5 Days: Partial Period = 5



(Scenario 3) 1st payment period is 35 Days: Partial Period = 35



   - When Partial Period value is set (except Zero), the calculator will use simple interest rate to calculate the 1st payment amount.
   - The maximum days to be set for the partial period calculation are 62 days

Precaution!

- ❖ Actual payment date of each payment might be different when the number of days in the month that is not 30 days.
- ❖ You have to adjust your result if the amortization loan contract is not setting 30 days as the monthly payment period.

Amortization (Fix interest rate)

1. Press ON/CA AMORT to enter the amortization calculation mode.
2. Press 1 INPUT (or ▶) to select fix interest rate [FIX → 1] calculation

Example 1: To plan for purchasing a new house, you are considering a mortgage for 30 years, $3,000,000 at 6% annual interest rate. If the 1st payment date is on Oct 2008, what will be the result of the following items as of Oct 2013?

- Monthly payment amount
- Interest part of monthly payment as of Oct 2013
- Principal part of monthly payment as of Oct 2013
- The balance after that payment.

Reminder: Select the Date Input Mode [YR→1] in the set-up menu before start calculation. (Ref. P.5)

1) *Enter amortization mode & select fix interest rate type*
ON/CA AMORT 1

AMORT FIX→1 2SP→2
1. ▶

2) *Input the Loan amount*
INPUT 3 00 00 00

AMORT Loan AMT?
3,000,000. ▶

3) INPUT 6

AMORT I%?
6. ◀▶

4) *Input the amortization duration= 12 mths x 30 years*
INPUT 360

AMORT MTHS?
360. ◀▶

5) *Input the 1st payment year-month; the "Date Input mode" should had been selected in the set-up menu*
INPUT 200810

AMORT PMT#1 MTH?
2008-10. ◀▶

6) *Input the year-month to perform calculation*
INPUT 201310

AMORT CAL on?
2013-10. ◀▶

7) *Display the monthly payment amount*
INPUT

AMORT PMT=
17,986.5157546 ◀▶

8) *Display the Interest part of monthly payment*
▶

AMORT INT Part=
13,958.1535234 ◀▶

9) *Display the principal part of monthly payment*
INPUT

AMORT PRN Part=
4,028.3622312 ◀▶

10) *Display the balance after that payment*
INPUT

AMORT BAL=
2,787,602.34245 ◀▶

When you continuous to press INPUT or (▶), you can obtain the mortgage
[TTL PMT =] - Total payment amount
[TTL INT =] - Total interest amount

Answer: As of Oct 2013, the monthly payment is $17,986.5157546 in which $13,958.1535234 is devoted to interest and $4,028.3622312 is devoted to principal. The balance after that payment is 2,787,602.34245

Advance payment and Refinancing calculation

1. Advance payment function allows you to simulate the impact of the loan schedule and monthly payment when part (or whole) of the loan principle is to be paid in advance by a lump sum amount prior to the loan contract due date.

2. Refinancing is a replacement of existing loan with another new loan conditions. You may consider refinancing the existing loan with aim(s) at:
   - Reducing the cost of interest (such as variable-rate to fix-rate loan)
   - Reducing monthly or periodic payment amount
   - Extending the repayment time
   - Raising cash

   You can calculate the payment and interest amount difference between old loan and new loan.

3. Press ON CA ADV-PMT RE-FIN to enter Advance payment & refinancing calculation mode. Then follows with interest rate option menu:
   - Press 1 INPUT (or ▶) to select fix interest rate [FIX → 1]
   - Press 2 INPUT (or ▶) to select 2-step interest rate [2SP → 2]

4. After confirmed the type of interest rate, you can decide which item (Total 3 options) to be calculated. Press ▲ or ▼ key to display the option:

   1 Period ST (Period Shorten: Period to be shorten by Advance payment)
   – On condition that monthly repayment amount no change. Calculate how the advance payment affects the number of payment (or repayment duration), interest amount and the balance.

   2 PMT SAV (Payment Savings: Payment to be saved by Advance payment)
   – On condition that the total number of repayment terms (duration) is kept. Calculate the impact of the advance payment towards monthly payment amount, interest amount and the balance.

   3 RE-FIN (Refinancing)
   – Calculate the payment difference between old loan and new loan.

   confirm the item to be calculated by pressing INPUT (or ▶) key

5. Before starting the advance payment or refinancing calculation, please go to the set-up menu and select the input method
   - Date input method “YR → 1” or
   - Term input method “TERM → 2”

Advance Payment – Period Shorten

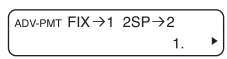
Example: On Nov 2008, you had made a loan $3,000,000 for 30 years, the bank offers you 2.5% annual interest (Fix interest rate). And you come to know that on Nov 2018 you will have $200,000, which you can use it as an advance payment of the loan.

(Part A) So, you want to know after you paid the advance payment on Nov 2018:

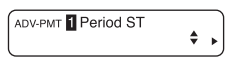
- How many payment terms you can be shorten?
- What is the actual advanced payment amount should be received by bank if the maximum advance payment amount is $200,000
- The interest amount to be savings
- The loan balance

Reminder: Select the Date Input Mode [YR→1] in the set-up menu before start calculation. (Ref. P.5)

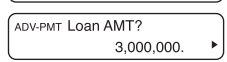
1) *Enter Advance Payment & Refinancing Mode, select 1 for fix interest rate setting*
   ON/CA ADV-PMT RE-FIN 1



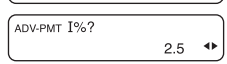
2) *Display the sub-division menu*
   INPUT



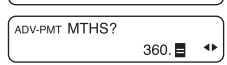
3) *Confirm to calculate period shorten and input the Loan amount*
   INPUT 3 00 00 00



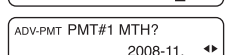
4) INPUT 2 • 5



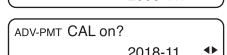
5) *Confirm interest rate and input the no. of months/ terms*
   INPUT 30 × 12 =



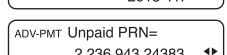
6) *Input the 1st payment year-month*
   INPUT 200811



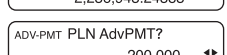
7) *Input the year-month to perform calculation*
   INPUT 201811



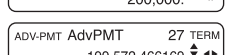
8) *Display unpaid principal as of Nov 2018*
   INPUT



9) *Input the planned maximum advance payment amount to be paid*
   INPUT 2 0 00 00



10) *Display the amount to be paid as advance payment, the no. of terms to be shorten*
    INPUT



11) *Display the corresponding interest amount to be savings after the advance payment being paid*
INPUT

ADV-PMT INT SAV=
120,475.461874

12) *Display the new loan balance after the advance payment $ 199,572.466169*
INPUT

ADV-PMT BAL(NEW=
2,037,370.77766

(Part B) If you only want to shorten 20 terms for this case, how much you should pay as an advance payment?
How much will the corresponding interest amount be savings?
What will be the new loan balance in this situation?

13) *Return the display of Payment terms being shorten in relation to advanced amount*

ADV-PMT AdvPMT 27 TERM
199,572.466169

14) *Reduce the terms to be shorten by pressing the down arrow key 7 times; and instantly display the amount to be paid as advance payment*

ADV-PMT AdvPMT 20 TERM
146,749.839251

15) *Display the corresponding interest amount to be savings by the new advance payment amount*
INPUT

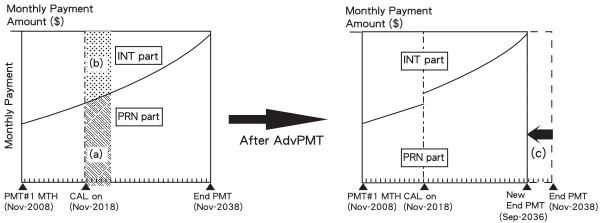
ADV-PMT INT SAV=
90,322.7000396

16) *Display the new loan balance after the advance payment $ 146,749.839251*
INPUT

ADV-PMT BAL(NEW=
2,090,193.40458

Answer: The loan $3,000,000 for 30 years from Nov 2008, with 2.5% annual interest (Fix interest rate), if there will be advance payment on Nov 2018:

Impact Scenario	Part A	Part B
No. of payment terms can be shorten	27	20
Actual advanced payment amount	$ 199,572.466169	$ 146,749.839251
Interest amount savings	$ 120,475.461874	$ 90,322.7000396
Loan balance	$ 2,037,370.77766	$ 2,090,193.40458



(a) Actual Advancing payment the bank receive (AdvPMT = $199,572)
(b) The Interest amount saved (INT SAV = $120,475)
(c) Period shorten (N = 27terms)

Advance Payment – Payment Savings

Example 1: On Nov 2008, you had made a loan $3,000,000 for 30 years, the bank offers you 2.5% annual interest (Fix interest rate). And you have a good news that on the 120th payment you will receive $200,000, which can be used as an advance payment of the loan.

Then, you want to know after you paid the advance payment on the 120th payment:

- What is the new monthly payment amount?
- How much will be the monthly payment savings?
- The interest amount to be savings
- The loan balance

Reminder: Select the Term Input Mode [TERM → 2] in the set-up menu before start calculation. (Ref. P.5)

1) ON/CA ADV/PMT/RE-FIN 1

ADV-PMT FIX→1 2SP→2
1.

2) *Confirm 2 to calculate the payment to be savings*
INPUT ▼

ADV-PMT 2 PMT SAV

3) *Confirm the Loan amount*
INPUT 3 00 00 00

ADV-PMT Loan AMT?
3,000,000.

4) INPUT 2 . 5

ADV-PMT I%?
2.5

5) INPUT 30 × 12 =

ADV-PMT MTHS?
360. =

6) *Input your target term to be calculated*
INPUT 120

ADV-PMT #Nth PMT?
120.

7) *Display the unpaid principal balance before the 120th payment*
INPUT

ADV-PMT Unpaid PRN
2,244,121.61742

8) *Input your planned advance payment amount*
INPUT 2 0 00 00

ADV-PMT PLN AdvPMT?
200,000.

9) *Display the new monthly payment amount after advance payment*
INPUT

ADV-PMT PMT(NEW=
10,797.2112273

10) *Monthly payment savings "New vs Old"*
INPUT

ADV-PMT PMT SAV=
1,056.4157372

11) *Display the corresponding interest amount can be savings after the advance payment being paid*
▶

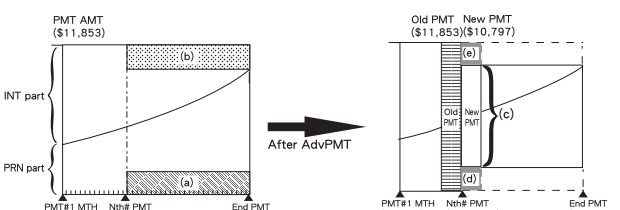
ADV-PMT INT SAV=
54,596.1926728

12) *Display the new loan balance*
INPUT

ADV-PMT BAL(NEW=
2,044,121.61742

Answer: The loan $3,000,000 for 30 years from Nov 2008, with 2.5% annual interest (Fix interest rate), if there will be advance payment $200,000 on the 120th:

New monthly payment amount	$ 10,797.2112273	Interest amount savings	$ 54,596.1926728
Monthly payment savings	$ 1,056.4157372	Loan balance (NEW)	$ 2,044,121.61742



(a) The planned maximum advance payment amount to be paid (PLN AdvPMT = $200,000)
(b) The interest amount saved (INT SAV = $54,596)
(c) New monthly payment after advancing (PMT(NEW = $10,797)
(d+e) Monthly payment amount saved (PMT SAV = $1,056)

Refinancing

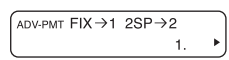
Example: On Nov 2008, you had made a loan $3,000,000 for 30 years, the bank offers you 2.5% annual interest (Fix interest rate). 10-year after (Nov 2018), this loan remains the outstanding principal $2,236,943.24383. In order to reduce total payment amount, you would like to consider refinancing it by a new loan:

- New loan amount : $ 2,240,000
- New loan interest rate : 2.0% annual rate (Fix interest rate)
- New loan duration : 20 years
- The administration charge : $ 3,000

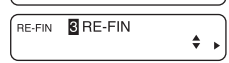
How much can you benefit from the new loan against the outstanding principal?

Reminder: Select the Date Input Mode [YR→1] in the set-up menu before start calculation. (Ref. P.5)

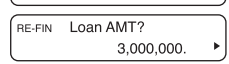
1) *Start from existing loan calculation*
ON/CA ADV-PMT/RE-FIN 1



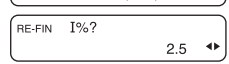
2) *Select 3 to calculate the refinancing*
INPUT ▼ ▼



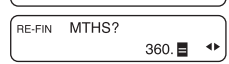
3) *Input the Loan amount month*
INPUT 3 00 00 00



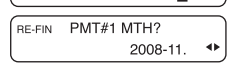
4) INPUT 2 • 5



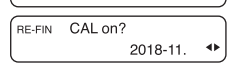
5) INPUT 30 × 12 =



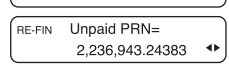
6) *Input the 1st payment month*
INPUT 200811



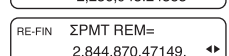
7) *Input the year-month to perform calculation*
INPUT 201811



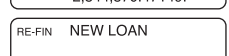
8) *Display unpaid principal as of Nov 2018*
INPUT



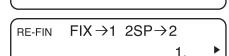
9) *Display total payment amount from 2018-11 till maturity*
INPUT



10) *Pop up message indicating a new loan calculation start*
INPUT



11) *New loan using fix interest rate*
1



12) *Input the New loan amount*
INPUT 2 2 4 00 00

RE-FIN N)Loan AMT?
2,240,000.

13) INPUT 2

RE-FIN N)I%
2.

14) INPUT 20 × 12

RE-FIN N)MTHS?
240.

15) *Display "NEW" loan's monthly payment*
INPUT

RE-FIN PMT(NEW=
11,331.786705

16) *Display "NEW" loan's total payment amount*
INPUT

RE-FIN TTL PMT(NEW=
2,719,628.8092

17) *Display "OLD" loan's total payment amount*
INPUT

RE-FIN O)ΣPMT REM=
2,844,870.47149.

18) *Display the difference between "New" and "Old" loan's total payment amount*
INPUT

RE-FIN ΣPMT DIFF=
125,241.66229

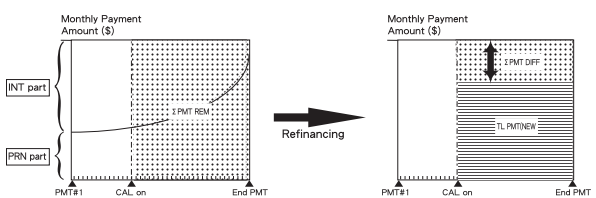
19) *Input Other costs: administration fee, agent fee…etc*
INPUT 3 000

RE-FIN Other Cost?
3,000.

20) *Display the "Net" difference after administration cost*
INPUT

RE-FIN DIFF(Cost=
122,241.66229

Answer: You can save $ 122,241.66229 (total payment amount) if you refinance outstanding principal with the new loan.



ΣPMT REM - Total payment amount from 2018-11 till maturity ($2,844,870)

TL PMT(NEW - "NEW" loan´s total payment amount ($2,719,628)

ΣPMT DIFF - the difference between "New" and "Old" loan´s total payment amount ($125,241)

Currency conversion calculation

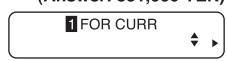
- You can perform currency exchange calculations, or calculate the exchange rate between two currencies.
- Press [ON/CA] [CURR CONV] will enter the currency conversion function mode. Press ▼ or ▼ key to display the sub-division menu:
  - 1 FOR CURR – foreign currency
  - 2 EX RATE – exchange rate base on local currency to foreign currency
  - 3 LOC CURR – local currency

confirm the item to be calculated by pressing [INPUT] (or ◄) key

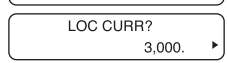
Example 1: How much Japanese YEN (Foreign currency) you can receive if you have US$3,000 (Local currency) and the exchange rate is 1 USD = 117 YEN?

(Answer: 351,000 YEN)

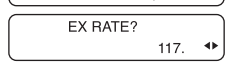
1) [ON/CA] [CURR CONV]



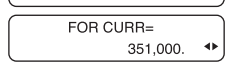
2) *Confirm to calculate foreign currency. Input local currency amount*
[INPUT] 3 000



3) *Input the exchange rate to foreign currency*
[INPUT] 117



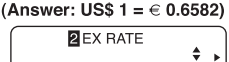
4) *Display the exchanged foreign currency*
[INPUT]



Example 2: What is the exchange rate?
If Local currency US$5,000 = foreign currency € 3,291(EURO)

(Answer: US$ 1 = € 0.6582)

1) *Enter Currency conversion function mode, select the next calculation item*
[ON/CA] [CURR CONV] ▼



2) *Confirm to calculate the exchange rate. Input foreign currency amount*
[INPUT] 3 291

3) *Input local currency amount*
[INPUT] 5 000

4) *Display the rate of this exchange*
[INPUT]

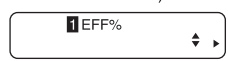
Interest Rate Conversion calculation

- The Interest rate conversion function lets you converting between Nominal interest rate [NOM%] and Effective interest rate [EFF%]. Effective interest rate calculation allows you using a common basis (compounded annually) to compare the nominal interest rates that have different compounding frequency.
- Press [ON/CA] [CURR CONV] [CURR CONV] to enter the Interest Rate Conversion mode.
- Press ▼ or ▲ key to display the sub-division menu:
  1 EFF% – Calculate the effective interest rate from nominal interest rate
  2 NOM% – Calculate the nominal interest rate from effective interest rate

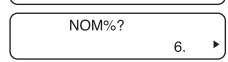
Example: You would like to open a savings account and aim at enjoying the highest interest rate from either Bank A or Bank B that have different offers:
Bank A → 6% annual interest, compounded monthly
Bank B → 6.05% annual interest, compounded twice a year (half year)
Which bank you should go for?

Step 1: Calculate EFF% of Bank A (Answer: Effective interest rate is 6.16778188645)

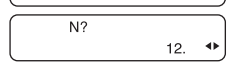
1) *Enter Interest rate conversion mode*
[ON/CA] [CURR CONV] [CURR CONV]



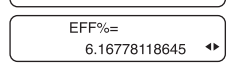
2) *Confirm to calculate Effective Interest Rate and input the nominal rate*
[INPUT] 6



3) *Input the number of Compounding*
[INPUT] 12

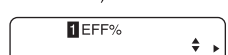


4) *Display the effective interest rate*
[INPUT]

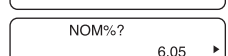


Step 2: Calculate EFF% of Bank B (Answer: Effective interest rate is 6.14150625)

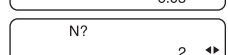
1) [ON/CA] [CURR CONV] [CURR CONV]



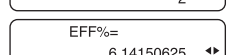
2) [INPUT] 6.05



3) *The interest Compounding twice a year*
[INPUT] 2



4) [INPUT]



Conclusion: Bank A offers higher interest rate than Bank B.

Date & Days calculation

- You can calculate the number of days between two different dates using 360-day mode or 365-day mode. Also you can calculate the date in the past or future by adding or subtracting days from a date.

- Simply press [MODE] [MODE] to enter the Date & Days calculation mode, display options by pressing [▲] or [▼] key.
  1 DAYS – calculate number of days between two (start and end) dates
  2 DATE1 – To find the date 1 (start day) by inputting days to date 2
  3 DATE2 – To find the date 2 (end date) by inputting days to date 1

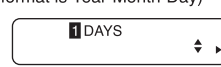
then press [INPUT] (or [►]) to confirm one of the above items to be calculated.

- In Days calculation mode,
  a. You can select [360 or 365] day mode:
     360: There are 360 days in a year and each month has 30 days
     365: Using the calendar number of days for the corresponding month and year. Leap year is included.

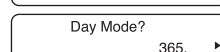
  b. To change the date input or display format, you have to go to date & clock display mode by pressing [ON/CA] [MODE] and switch the date format by pressing [D/M/Y]

Example: Calculate the number of days between 15 Oct 2008 and 01 Mar 2009 in the 365-day mode? (The date format is Year-Month-Day)

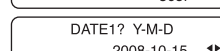
1) [ON/CA] [MODE] [MODE]



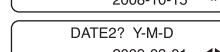
2) *Confirm to calculate the number of days. Key-in 365 as Day Mode*
   [INPUT] 365



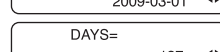
3) *Input start date in the format YYYY-MM-DD*
   [INPUT] 20081015



4) *Input the end date*
   [INPUT] 20090301



5) [INPUT]



Answer: There are 137 days between the two dates.

IMPORTANT NOTICE:

All financial calculations in FN-600 are base on following formulas; however, your bank or financial institutions will offer or qualify the terms and conditions of the financial activities according to the contract or different calculation formulas. As a result, the calculation may vary. Certain financial terminology, problems, examples or calculation methods described in this manual may not fit for all nations. Therefore, you have to consult the qualified financial institution before making a financial decision.

Certificate of Deposit calculation

AMT: Amount at maturity, **PV:** Certificate of deposit amount at the beginning,
I: Interest rate (%), **MTHS:** Number of month(s) in the savings period,
m: Compounding number (1, 2, 4, 12)

$$AMT = PV \times \left(1 + \frac{I}{100 \times m}\right)^{MTHS+12\times m}$$

Goal savings calculation

AMT: Amount at maturity, **PMT:** Monthly savings (installment) payment,
I: Interest rate (%), **MTHS:** Number of month(s) in the savings period,
m: Compounding number (1, 2, 4, 12)

$$AMT = PMT \times \left(\frac{F^{(MTHS+1)} - F}{F - 1}\right) \text{ , where } F = \left(1 + \frac{I}{100\times m}\right)^{\frac{m}{12}}$$

Currency savings calculation

AMT: Amount at maturity, **PV:** Local currency savings amount at the beginning,
I: Interest rate (%),
TTS: Telegraphic transfer selling rate at the beginning time,
DAYS: Number of days for savings,
TTB: Telegraphic transfer buying rate at the end,
Day Mode: Number of days per year (365 or 360),

$$AMT = \frac{PV}{TTS} \times \left(1 + \frac{I}{100} \times \frac{DAYS}{DayMode}\right) \times TTB$$

$$Breakeven = \frac{PV}{\frac{PV}{TTS} + \left(\frac{PV}{TTS} \times \frac{I}{100} \times \frac{DAYS}{DayMode}\right)}$$

Simple Interest Calculation

AMT: Amount at maturity, **PV:** Savings amount at the beginning,
I: Interest rate (%), **DAYS:** Number of days for savings,
Day Mode: Number of days per year (365 or 360),

$$AMT = PV + \left(PV \times \frac{I}{100} \times \frac{DAYS}{DayMode}\right)$$

Loan Calculation
PMT: Monthly payment, **Loan AMT:** Loan amount at the beginning time,
I: Interest rate (%), **MTHS:** Number of month in the loan period,

$$PMT = LoanAMT \times \frac{\frac{I}{100 \times 12}}{1 - \left(1 + \frac{I}{100 \times 12}\right)^{-MTHS}}$$

Partial Period (Set in setup menu)
Partial PER: Number of days in 1st payment (e.g. Normal case, number of days in 1st payment is 30days, the Partial PER = 0)
Loan AMT: Loan Amount at the beginning of time
I: Interest rate
INT AMT(1st PMT): interest amount in the 1st payment

- When "Partial PER" is 0 (Normal Case)

$$INT\ AMT(1st\ PMT) = Loan\ AMT \times \left(\frac{I}{100 \times 12}\right)$$

- When "Partial PER" is 1~30

$$INT\ AMT(1st\ PMT) = Loan\ AMT \times \left(\frac{I}{100}\right) \times \frac{Partial\ PER}{365}$$

- When "Partial PER" is 31~62

$$INT\ AMT(1st\ PMT) = Loan\ AMT \times \left(\frac{I}{100 \times 12}\right) + Loan\ AMT \times \left(\frac{I}{100}\right) \times \frac{(Partial\ PER - 30)}{365}$$

Interest conversion Calculation
EFF%: Effective interest rate, **NOM%:** Nominal interest rate,
N: Number of compounding

$$EFF = \left[\left(1 + \frac{NOM}{100 \times N}\right)^{N} - 1\right] \times 100$$

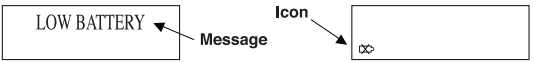
$$NOM = \left[\left(1 + \frac{EFF}{100}\right)^{\frac{1}{N}} - 1\right] \times N \times 100$$

Currency conversion Calculation
FOR CURR: Foreign currency amount, **LOC CURR:** Local currency amount,
EX RATE: Exchange rate base on local currency to foreign currency.

$$FOR\ CURR = LOC\ CURR \times EX\ RATE$$

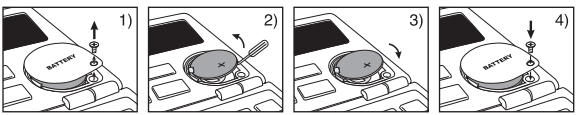
BATTERY REPLACEMENT

When the following Low battery **message** or **icon** appears stop using calculator, turn it off, replace the battery immediately.



Please replace the lithium battery by the following procedures:

1. Press [OFF] to power off the calculator.
2. Remove the screw that securely fixes the batter cover in place (fig 1).
3. Take out the battery cover by thin and sharp object and remove the old battery with a ball pen or similar sharp object (fig 2).
4. Load the new battery with the positive "+" side facing up (fig 3).
5. Replace the battery cover, screw, and press the Reset button to initialize the calculator (fig 4).



CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instruction.

- Electromagnetic interference or electrostatic discharge may cause the display to malfunction or the contents of the memory to be lost or altered. Should this occur, use the tip of a ball point pen (or similar sharp object) to press the [RESET] button at the back of the calculator. After resetting, be sure to set the clock, calendar and tax rate again.

SPECIFICATIONS

Power Supply	: a single lithium battery (CR2032 x 1)
Power Consumption	: 0.003W
Battery life	: Approximate 2 years (Based on 1 hour operation per day)
Auto power off	: Approx. **7 minutes**
Usable Temperature	: 0 ~ 40°C (32F ~ 104F)
Size	: 77.6(L) x 105(W) x 13.8(H) mm (Close)
	: 105(L) x 150(W) x 9.6(H) mm (Open)
	: 3-1/16"(L) x 4-9/64"(W) x 5/32"(H) (Close)
	: 4-9/64"(L) x 5-29/32"(W) x 3/8"(H) (Open)
Weight	: 89g (3.14 oz) (Battery included)

*Specifications are subject to change without notice.

FOR USA PRECAUTIONS:

Included battery contains perchlorate material – special handling may apply.
See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/ for detail.