Financial calculators

Financial calculators are often helpful in solving financial problems. Here is a brief introduction to their main features.

Agenda

1. Basic Functions

2. Equations

3. Cash Flows

4. IRR

Basic Functions		The starting point ...

In order to	*You type*	*You get*
Turn calculator on	ON (CLR button)	0.0000 FIN BUS SUM TIME SOLVE CURRX
Turn calculator off	▨ OFF (CLR button)	0.0000 FIN BUS SUM TIME SOLVE CURRX
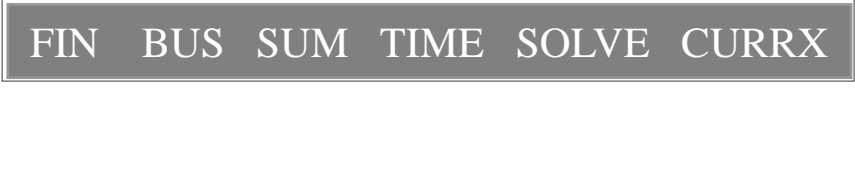
The starting point ...

In order to	*You type*	*You get*
Go back to the previous menu	EXIT	
Go back to the previous menu	⬜ MAIN (EXIT button)	0.0000 FIN BUS SUM TIME SOLVE CURRX
Clear data in calculator line	⬜ CLR	0.0000 FIN BUS SUM TIME SOLVE CURRX
Clear all data from the screen (if you have several lines)	⬜ CLR DATA (INPUT Button)	0.0000 FIN BUS SUM TIME SOLVE CURRX

Modes

In order to	*You type*	*You get*

Turn beeper off

    MODES
(DSP Button)

SELECT MODE					
BEEP	PRNT	DBL	ALG	RPN	INTL

**CRITICAL FUNCTION
(especially during exams!!)**

BEEP
BEEP

and then EXIT

BEEPER:	OFF				
BEEP	PRNT	DBL	ALG	RPN	INTL

Modes

In order to	*You type*	*You get*
Fix number of decimal places displayed	DSP	SELECT DISPLAY FORMAT FIX ALL . ,
	FIX	TYPE #DIGITS (0-11); PRESS [INPUT] FIX ALL . ,
	4	4 PRESS [INPUT] FIX ALL . ,
	INPUT	0.0000 FIN BUS SUM TIME SOLVE CURRX

Modes

In order to	*You type*	*You get*
Set calculator to English mode (decimal point as a period as opposed to a comma)	�(yellow) MODES (DSP Button)	SELECT MODE BEEP PRNT DBL ALG RPN INTL
Note: You can also do that using DSP button directly. See previous slide for detail.	INTL	SELECT LANGUAGE DEUT ENGL ESPN FRAN ITAL PORT
	ENGL	0.0000 FIN BUS SUM TIME SOLVE CURRX
	and then EXIT	

Modes

In order to	*You type*	*You get*

Change the number of payments per year from 12 to 1

EXIT
to go back to the first menu

0.0000	
FIN BUS SUM TIME SOLVE CURRX	

FIN

SELECT A MENU	
TVM ICONV CFLO BOND DEPRC	

TVM

12 P/YR	END MODE
N I÷YR PV PMT FV OTHER	

OTHER
1
P/YR

1 P/YR	END MODE
P/YR BEG END AMRT	

and then EXIT

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Programming Equations - Discount Factor

In order to	*You type*	*You get*
Enter programming mode	SOLVE	{NEW} FOR NEW EQUATION CALC EDIT DELET NEW
Enter discount factor equation $DF = 1 \div (1+R)^T$ (Type in letters, numbers and symbols using keyboard)	DF = 1÷((1+R)^T)	DF = 1÷((1+R)^T) ABCDE FGHI JKLM NOPQ RSTUV WXYZ
Save equation	INPUT	DF = 1÷((1+R)^T) CALC EDIT DELET NEW
Edit equations	EDIT	■F = 1÷((1+R)^T) DEL <<-- <-- --> -->> ALPHA

Programming Equations - Annuity Factor

In order to	*You type*	*You get*
Input next equation	NEW	TYPE EQUATION; [INPUT] ABCDE FGH JKLM NOPQ RSTUV WXYZ
Enter annuity factor equation	AF = (1÷R)×(1-(1÷((1+R)^T)))	AF = (1÷R)×(1-(1÷((1+R)^T))) CALC EDIT DELET NEW
Save equation	INPUT	AF = (1÷R)×(1-(1÷((1+R)^T))) CALC EDIT DELET NEW

Equations	Using Equations - Example: Calculating discount factor for a discount rate of 5% and T=5

In order to	*You type*	*You get*
Enter programming mode	SOLVE	AF = (1÷R)×(1-(1÷((1+R)^T))) DF = 1÷((1+R)^T) CALC EDIT DELET NEW
Pick equation	⇓ to scroll down CALC	DF = 1÷((1+R)^T) 0.0000 DF R T
Enter discount rate & periods	0.05 R 5 T	R = 0.0500 T=5.0000 DF R T
Calculate discount factor	DF	R = 0.0500 T=5.0000 DF=0.7835 DF R T

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Cash Flows	Example: Calculating present value (price) of bond with 6-year term, 8% annual coupon payments, and $1,000 face value, at 6% discount rate

In order to	*You type*	*You get*
Enter Time-Value-of-Money (TVM) mode	FIN TVM	1 P/YR END MODE N I÷YR PV PMT FV OTHER
Enter # of periods, discount rate, coupon payments, and face value	6 N 6 I/YR 80 PMT 1000 FV	I%YR=6.0000 PMT=80.0000 FV=1,000.0000 N I÷YR PV PMT FV OTHER
Calculate Present Value	PV	PMT=80.0000 FV=1,000.0000 PV=-1,098.3465 N I÷YR PV PMT FV OTHER

Cash Flows

In order to	*You type*	*You get*
Enter Cash Flow function	FIN CFLO	FLOW(0)=?

CALC INSR DELET NAME GET #T?

IF data on the screen :
clear data
Note: Alternatively, you
can use the GET option
to enter a new series.

[yellow box] CLR DATA
(INPUT Button)

YES

CLEAR THE LIST?

YES   NO

-500	100	200	200	200	300
0	1	2	3	4	5

Enter cash flow

-500   INPUT
100   INPUT
1   INPUT
200   INPUT
3   INPUT
300   INPUT
1   INPUT

FLOW(3)=300.0000
#TIMES(3)=1
1.0000

CALC INSR DELET NAME   GET #T?

Cash Flows

In order to	*You type*	*You get*
	EXIT to go back to the previous menu	NPV, NUS, NFV NEED I%
		TOTAL IRR% I% NPV NUS NFV
	CALC	
Enter discount rate	10 I%	I%=10.0000
		TOTAL IRR% I% NPV NUS NFV
Calculate Net Present Value	NPV	NPV=229.3404
		TOTAL IRR% I% NPV NUS NFV

Interest Rates	

Key Issue

**When to enter 10 and when to enter .10
when you mean 10%?**

Example

Note that in all the preprogrammed calculator functions, like NPV, the interest rate you must input is the PERCENTAGE form (NOT the DECIMAL form).

When we entered the discount rate in our equation DF = 1/((1+R)^T, the variable R represented the DECIMAL interest rate (i.e. 5% ➔ input .05)

When we entered the discount rate in the calculator's preprogrammed NPV function, the variable I% represented the PERCENTAGE interest rate
(i.e. 10% ➔ input 10)

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IRR

In order to	*You type*	*You get*
Enter Cash Flow function	FIN CFLO	FLOW(0)=?

CALC INSR DELET NAME GET #T?

IF data on the screen :
clear data
Remember you can enter
a new series after naming
the previous one.

CLR DATA
(INPUT Button)

YES

CLEAR THE LIST?

YES   NO

-500	400	600	-900	500
0	1	2	3	4

Enter cash flow

-500	INPUT
400	INPUT
1	INPUT
600	INPUT
1	INPUT
-900	INPUT
1	INPUT
500	INPUT

FLOW(4)=500.0000
#TIMES(4)=1
1.0000

CALC INSR DELET NAME GET #T?

IRR

In order to	You type	You get
Calculate the IRR	CALC IRR%	MANY / NO SOLUTIONS; KEY IN GUESS; [STO] {IRR%} TOTAL IRR% I% NPV NUS NFV
Enter your guess for IRR	EXIT CALC IRR% 15 STO IRR%	IRR%=14.2020 TOTAL IRR% I% NPV NUS NFV