Finance on the TI-83

Using the TVM-Solver (Time-Value-of-Money)

You can get to the TVM solver by hitting the FINANCE key and selecting 1:TVMSolver...

You are asked for:

N=Number of compoundings
I%= annual interest rate
PV= present value
PMT= payment
FV= future value
P/Y= payments per year
C/Y= compoundings per year
PMT: END BEGIN

For our purposes, we will always set P/Y and C/Y to the same thing, the number of compoundings per year. Also all payments are made at the end of the compounding period, so END should always be highlighted.

Compound interest

Example: If $100 is deposited into an account the earns 5% interest compounded monthly, then how much will be in the account after 3 years?

Solution: We fill in the values that we know and leave the one that we don't know blank. Put the following into the calculator. Please note that for the percentage we put in 5 and not .05.

N=36
I%=5
PV=-100
PMT=0
FV=
P/Y=12
C/Y=12

The PV was a cash outlay. Cash outlays always go into the calculator as a negative number. The FV is left blank since that is the question that is being asked. As always, make sure that END is highlighted and move the cursor to FV= and hit SOLVE ([alpha] [ENTER]).

The value of 116.1472231 gets filled in for FV, so the answer is $116.15.
Example: If $100 is deposited into an account the earns 5% interest compounded monthly, then how long will it take for the account to have $150?

Solution: Here we are given everything except N, the number of compoundings.

N=
I%=5
PV=- 100
PMT=0
FV= 150
P/Y=12
C/Y=12
Since the FV is not a cash outlay we put the value in as a positive number and since there will be no additional payments, PMT = 0. Now solve for N and we get

N=97.5.

Future Value

Example: What is the value of an ordinary annuity at the end of 15 years if $100 is deposited each month into an account earning 5% compounded monthly.

Solution:

N=180
I%=5
PV=0
PMT=- 100
FV=
P/Y=12
C/Y=12
PV is the value of the account at the beginning which is 0. PMT is a cash outlay so it goes in as -100. Solve, and FV=26728.89.
Present Value

Example: You want to borrow $200,000 to buy a house. You get a thirty year loan at 7% interest compounded monthly. What are your monthly payments?

Solution:

N=360
I%=7
PV=200000
PMT=
FV= 0
P/Y=12
C/Y=12

There will be N=360 payments after 30 years. The present value will be 200,000 and you want to owe 0 after 360 payments so FV = 0.

Move the cursor to PMT = and SOLVE to get PMT = -1330.60499 so your monthly payments will be $1330.60.

Example: You wish to set up an annuity that pays $350 per month for 5 years. How much money must be deposited into an account that pays 6% compounded monthly in order to establish the annuity?

Solution:

N=60
I%=6
PV=
PMT= 350
FV= 0
P/Y=12
C/Y=12

FV should be 0 since you want there to be no money in the account after the 5 years. Solve and PV =-18103.95.

Recall that this is a cash outlay, so that is why it came out negative.