

MTH120 - Carlson Graphing Calculator Packet Handout #7

TMV Solver

The TI-83 has a FINANCE menu that can be used to determine many values such as interest rates, payment amounts or future values of investments. This handout leads you through some examples of using this feature of the calculator.

Problem

You buy a car and will need to finance \$14,500. You want to see what the payment amount will be if you decide to get a 4 year loan at 7% as compared to a 5 year loan at 7.15%. What are the payment amounts?

Solution

On the calculator, press **2nd** **FINANCE** . Now press **ENTER** to select option 1: TMV Solver. Your screen should look like that below, except some of the numbers will probably be different.

```

N=1
I%=1
PV=1
PMT=1
FV=1
P/Y=12
C/Y=12
PMT: [END] BEGIN
  
```

On this screen,

N represents the number of payment periods

I% is the annual interest rate

PV is the amount you borrow (present value of the account)

PMT is the payment amount

FV is the future value of the account

P/Y is the number of payments (or periods) per year

C/Y is the number of times the interest is compounded per year

PMT: END BEGIN is when the payment is made, at the beginning or end of the payment period.

For our problem, for the 4 year loan, **N** = 48, **I** = 7, **PV** = 14500, **FV** = 0 (you want the balance to be zero when you are done making payments), **P/Y** = 12 (since these are monthly payments), **C/Y** = 12 (This automatically is set to equal the value of P/Y. If you need to you can change it to be different.), and the payment is made at the end of the period.

Enter these values and then place the cursor on the payment amount (**PMT**) as shown below.

```

N=48
I% = 7
PV = 14500
PMT = ■
FV = 0
P/Y = 12
C/Y = 12
PMT: [2ND] [PMT] BEGIN
  
```

Now, to calculate the payment amount, press **[ALPHA]** **[SOLVE]** and the payment amount is given as -347.22054.... or \$347.22 per month.

Do not be concerned about the negative amount. (The calculator treats cash paid as negative numbers.)

If you now just change the values of **N** and **I** to 60 and 7.15, you can calculate the payment for the 5 year loan. Your answer should be \$288.14 per month.

Problem

You invest \$12,000 in an account paying 5.6% interest compounded quarterly. How much is in the account after 5 years?

Solution

This is a compound interest problem. For our situation, **N** = 5 since we have no payments, **I** = 5.6, **PV** = 12000, **PMT** = 0 (you are not making any payments), **FV** is the value we are looking for so any value is ok for now, **P/Y** = 1 (The calculator needs a nonzero number.) and **C/Y** = 4 since we are compounding quarterly.

```

N=5
I% = 5.6
PV = 12000
PMT = 0
FV = ■
P/Y = 1
C/Y = 4
PMT: [2ND] [PMT] BEGIN
  
```

Place the cursor on the value for **FV** and press **[ALPHA]** **[SOLVE]** and you see the \$12,000 has grown to \$15,846.76 in the five years.