

TI-83/TI-83 Plus Procedure 27: Using the Time-Value-of-Money Solver

Example

You want to buy a car for \$9750. You can pay only \$250 per month for 48 months. What is the highest APR (annual percentage rate) that will let you buy the car?

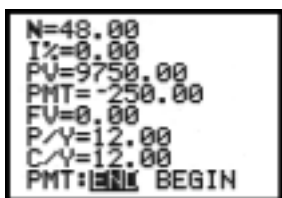
STEP 1: First, set the number of digits to two by pressing **MODE** and selecting **2** instead of **Float**. Then press **2nd** [FINANCE] **1** (**APPS** **1** on the TI-83 Plus) to access the Time-Value-of-Money (TVM) Solver screen.



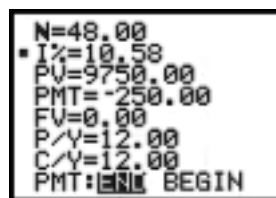
The definitions of the variables are as follows:

- N:** Total number of payment periods
- I%:** Annual interest rate
- PV:** Present value
- PMT:** Payment value
- FV:** Future value
- P/Y:** Number of payment periods per year
- C/Y:** Number of compounding periods per year

STEP 2: Press **48** for **N**. Press **▼ ▼ 9750** for **PV**. Then press **▼ (-) 250** for **PMT**. The payment is negative because it is a loan. Leave **FV** at zero. Enter **12** for **P/Y**. The TI-83/TI-83 Plus will copy the entry for **P/Y** into **C/Y** for you.



STEP 3: To find the APR, move the cursor onto the zero to the right of **I%**. Press **ALPHA** [SOLVE], and the TI-83/TI-83 Plus will solve for the interest. The APR you need is 10.58%. Any higher APR and you will not be able to afford the car.



SOLVE: The TVM Solver can find **N**, **I%**, **PV**, **PMT**, or **FV**. Enter amounts for each known variable. Then move the cursor to the unknown variable. Press **ALPHA** [SOLVE] to find its value.

SIGN OF MONEY: Money that is paid into an account (e.g., the principal of a savings account, a loan payment) is entered with a negative sign. Money that is given to you (e.g., the principal of a car loan, interest from a savings account) has a positive value.

FLOAT: Remember to press **MODE ▼ ENTER** to return to float mode when you are done with the TVM Solver.

Exercises

Find the value of each investment. Assume that the interest is compounded quarterly.

1. \$2,000 invested at 4.35% for 11 years (PMT = 0, P/Y = 4)
2. \$250 invested at 8.6% for 24 years (PMT = 0, P/Y = 4)
3. You are buying a new house for \$120,000. Your 30-year mortgage has an 8.5% rate. The mortgage is compounded monthly. How much will your monthly payments be on the house?