

When using the TI-83 Plus or TI-84 Plus calculators you access **Finance** by pressing the APPS key.

Present Value of an Ordinary Annuity

The present value of an annuity is the single sum of money needed to generate a specific number of payments. Specifically, how much money must be deposited today so that a set amount of money can be withdrawn at regular time intervals?

Example 1:

What amount of money must be invested today at 6% compounded monthly so that payments of \$100 per month can be made from this fund for 5 years?

Method 1: Using the TVM Solver

- Press **2nd** [FINANCE] (5A)† and choose **1:TVM Solver** from the CALC menu.
- Enter N=60, I%=6, PMT=100, FV=0, P/Y=12 and C/Y=12.
- Place the cursor on PV and press **ALPHA** [SOLVE] (10E).

An amount of \$5,172.56 must be invested today. (Figure 1)

Method 2: Using the tvM_PV function

- Press **2nd** [QUIT] to return to the Home Screen.
- Press **2nd** [FINANCE] (5A). Choose **4:tvM_PV** from the CALC menu. The syntax is **tvM_PV(N,I%,PMT,FV,P/Y,C/Y)**. (Figure 2)
- For this particular exercise, enter **tvM_PV(60,6,100,0,12,12)**. (Figure 3)

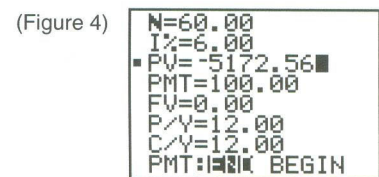
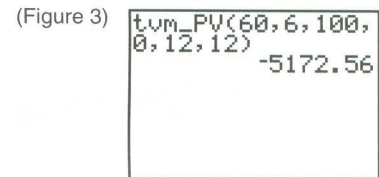
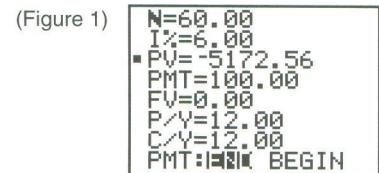
Example 2:

The H Club has decided to hold a raffle. The prize is \$100 a month for 5 years. The Club can invest at 6% compounded monthly. What does the Club need to invest to pay the prize?

First, calculate how much the club must “pay” for the annuity that they are raffling off.

- Press **2nd** [FINANCE] (5A) and choose **1:TVM Solver**.
- Enter N=60, I%=6, PMT=100, FV=0, P/Y=12 and C/Y=12. Note: PMT is positive because the investment is viewed as producing \$100 per month.
- Position the cursor on PV and press **ALPHA** [SOLVE] (10E).

The present value PV is negative \$5,172.56 because that is what the club must pay to “buy” the prize. (Figure 4)



† Refer to the section on Key Arrangement in Chapter 1 for an explanation of the key locator codes used in this manual.

If the Club takes in \$10,000, how much profit will it make on the raffle?

Method 1: Using the PV variable

The calculation is $10000 + PV$ because the PV is negative, an expenditure for the Club.

1. Press **[2nd]** **[QUIT]** (2B) to return to the Home Screen.
2. Enter 10000 **[+]**.
3. To locate PV, press **[2nd]** **[FINANCE]** (5A) and choose **3:PV** from the VARS menu. This will paste the variable on the Home Screen. (Figure 5)
4. Press **[ENTER]**.

The club will make \$4,827.44 (Figure 6)

Method 2: Using the **tvm_PV** function

1. Enter 10000 **[+]**.
2. Press **[2nd]** **[FINANCE]** (5A) and choose **4:tvm_PV** from the CALC menu. (Figure 7)
The syntax for this function is **tvm_PV(N,I%,PMT,FV,P/Y,C/Y)**.
3. For this problem, enter **tvm_PV(60,6,100,0,12,12)**. (Figure 8)

Example 3:

Newlyweds purchased a television set for \$100 down and \$30 a month for 12 months. If the finance charge is 15% compounded monthly, find the cash price.

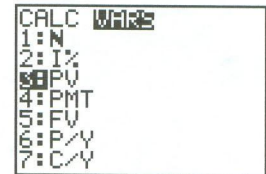
1. Press **[2nd]** **[FINANCE]** (5A) and select **1:TVM Solver**.
2. Enter the values shown. Move the cursor to PV and press **[ALPHA]** **[SOLVE]** (10E). (Figure 9)

PV is shown as a negative number, -332.38, because it is a payout. The total cash price is the sum of the present value and the \$100 down payment. Since the down payment is also a payout, it must be entered as a negative number. Thus the total cash price is $PV + (-100)$ or $PV - 100$.

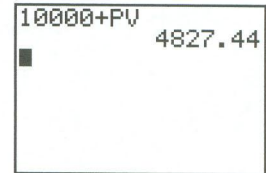
3. Press **[2nd]** **[QUIT]** (2B) to return to the Home Screen.
4. Press **[2nd]** **[FINANCE]** (5A) and choose **3:PV** from the VARS menu to paste the variable on the Home Screen. (Figure 10)
5. Type **[−]** 100 **[ENTER]**.

The total cash price is \$432.38. The newlyweds will pay $30 * 12 + 100 = \$460$ for the television using the installment option.

(Figure 5)



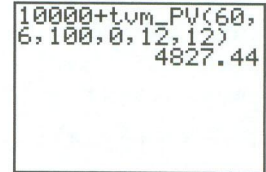
(Figure 6)



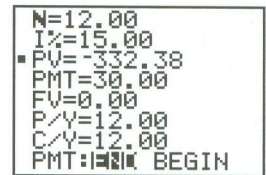
(Figure 7)



(Figure 8)



(Figure 9)



(Figure 10)



(Figure 11)

