

TI-83/TI-83+/TI-84 Introductory Video Notes

These notes are provided so that students watching the TI-83/TI-84 Introductory Video will not have to take notes while watching the video, but can instead concentrate on using the calculator. The video was made with the TI-83; however, it is practically identical to the TI-84. All the material covered on this video, and in these notes, is the same for the TI-83 and the TI-84, with one exception: **Finance** is found in **APPS** on the TI-83+ and the TI-84, rather than being accessed with 2^{nd} x^{-1} . Also, though the matrix capability is not covered on this video, note that **MATRIX** is found above the x^{-1} key on the TI-83+ and the TI-84.

Order of operations

The calculator follows the standard mathematical order of operations of PEMDAS:

Parentheses

Exponents

Multiplication/Division

Addition/Subtraction

Screen contrast

Press 2^{nd} and then the **up** arrow, for darker characters. Press 2^{nd} and then the **down** arrow, for lighter characters.

Entering and editing characters

- To delete the character at the cursor, press the **DEL** key.
- To insert a character in front of the cursor, without erasing the character that is there, press **INS**, above DEL. Use the 2^{nd} key and then DEL. Then press the new character you want to insert.
- To clear the problem in progress, or to clear the entire screen, press the **CLEAR** key.
- Use the \div key for division and to write a fraction bar. The screen will always show a fraction bar.

Changing decimals to fractions

With the decimal value on the screen, press **MATH** and then choose " \triangleright **FRAC**." If you have a repeating decimal, be sure that you type the numbers all across the screen to indicate that. Then press **ENTER**.

Returning to the Home Screen

To return to the Home Screen at any time, press 2^{nd} and **QUIT** (located above MODE).

Retrieving the answer from the previous problem

- **Starting** a problem with an addition, subtraction, multiplication, or division symbol automatically instructs the calculator to operate on the previous answer; **Ans** will appear on the screen directly in front of the operation.
- To **retrieve** the answer from the previous problem at any time, press 2^{nd} and then press **ANS**, located above the negation key on the lower right of the keyboard.

Retrieving an entire previous problem

Though it is not possible to scroll up on the calculator, previous problems can easily be accessed by pressing 2^{nd} **ENTRY** (above ENTER). Pressing the 2^{nd} **ENTRY** combination multiple times will access multiple previous problems.

Subtraction versus negation

- The **subtraction** key is located near the bottom of the right column of the calculator. This key is used to perform the **operation of subtraction**.
- The **negation** key is located on the right side of the bottom row of the calculator, next to the ENTER key. The negation key is used directly before a number or variable to indicate a negative value or variable.

Powers and roots

- To evaluate 3^2 , press **3** and then press the x^2 key, which is located in the left column of the keyboard.
- To evaluate 3^4 , press **3** and then the \wedge key, which is located in the right column of the keyboard. Then press **4**.
- To evaluate $\sqrt{9}$, press 2^{nd} , followed by $\sqrt{}$, which is located in the left column above the x^2 key. Then press **9** and the right parenthesis.
- To evaluate $\sqrt[3]{27}$, there are three methods that can be used:
 - One method is to press **3**, followed by the $\sqrt[x]{}$ symbol found in MATH, and then **27**.
 - Another method is to use $\sqrt[3]{}$, which is the 4th option under MATH.

- The third, and most commonly used, method is to remember that $\sqrt[3]{27}$ means $27^{1/3}$; raise 27 to the 1/3 power, using the \wedge key. The entire exponent must be in parentheses.
- To evaluate $\sqrt{-9}$, the calculator must be in $a+bi$ mode, found in MODE. The calculator will accept complex notation and work with complex numbers. The i is located above the decimal point key.

Absolute value and inverse

- To evaluate $|-5|$, press **MATH**, and choose **NUM**. Choose **abs**. Then enter the **-5**, followed by the **right parenthesis**.
- To evaluate 2^{-1} , press the **2**, followed by the x^{-1} key, which is located in the left column on the keyboard.

Scientific Notation

Example: "If 2.697E-4 shows on the screen, it means 2.697×10^{-4} , which equates to .0002697 in standard form.

Finance

TI-83: Press the **2nd** and then **FINANCE**, which is above x^{-1} .

TI-83+ and TI-84: Press the **APPS** key, and choose the **Finance** option.

Now choose **TVM Solver**. TVM is the abbreviation for Time Value of Money. An example of the use of the **TVM Solver** would be to calculate the amount of the monthly payment on a 30-year \$100,000 mortgage with an interest rate of 7.5%. Assume that the payment will be made at the beginning of each month.

N = 12x30 (Total number of compounding periods)

I% = 7.5 (Annual interest rate)

PV = 100,000 (Present value of the mortgage)

PMT = (Place the cursor here when all other entries are done, since this is the unknown quantity.)

FV = 0 (Future value of the mortgage)

P/Y = 12 (Number of payments per year)

C/Y = 12 (Number of compounding periods per year)

PMT: END **BEGIN** (Payment made at the beginning of the month)

To calculate the payment amount, place the cursor at PMT; then press **ALPHA** and then **SOLVE** (located above ENTER).

Storing

To store a number, begin in the Home Screen. Enter the number and then press the **STO** key, located in the left column of the keyboard. Then press the **X** key located next to the ALPHA key, or access another letter located above the other keys. ENTER. Now when the letter is used on the Home Screen, the expression will be evaluated using the stored value.

CATALOG

The CATALOG is located above the zero key and can be used to find nearly all of the commands and operations of the calculator. Press **2nd CATALOG** and then press the first letter of the word to be accessed. Then arrow to the word/symbol and press ENTER. The word/symbol will then paste into the position of the cursor on the previous screen.

Function notation

To use function notation to evaluate a function at a particular value, take the following steps:

Enter a function at the **Y=** key (e.g., $Y1 = x^2 + 3$), and return to the Home Screen with **2nd QUIT**. Since the function is in Y1, paste the Y1 symbol into the Home Screen with the following steps: **VARs** → **Y-VARS** → **Function** → **Y1**

To evaluate the function for $X = -5$, the calculator screen should be made to look like this: Y1 (-5). Then press ENTER.

For the example $Y1 = x^2 + 3$, the result of Y1 (-5) will be 28.

Table

To show a table of values for a particular function, first enter the function at the **Y=** key. Before accessing the table, first **set** the table with TBLSET, which is located above the WINDOW key.

- If a regular increment is desired, then ΔTbl must be given that value; the *Independent* variable must be set to *Auto*.
 - If a variety of x values are desired, the ΔTbl will be of no consequence; the *Independent* variable must be set to *Ask*.
- When the *Auto* versus *Ask* option has been completed, access the table with **2nd TABLE** (above the GRAPH key).

Turning off the calculator

Turn off the calculator by pressing **2nd** and then **OFF**, which is located above the ON key.