Making and Using Tables

College Algebra

# Introduction

Using a table of values for a function is a good way to see overall trends while seeing exact values. With a calculator, you can generate a table of values quickly.

# Steps for Making Tables on Texas Instruments Calculators

To make a table of values with a TI graphing calculator, do the following:

1. Rewrite the formula so that the independent variable is $x$ and the dependent variable is$ y$.
2. Press the Y= button on the calculator and type the formula for Y1.
3. Press 2ND and WINDOW to get to the TBLSET menu.
4. Set the initial value for TblStart and the skip in the independent variable as ΔTbl.
5. Press 2ND and GRAPH to see the table.

# Example 1

For the first, example, we will make a table of values for the function $B=\frac{6t-1}{5t+2}$ for $t=3, 5, 7, …$.

## Solution

The first step is to rewrite the formula using $x$ and $y$:
$$y=\frac{6x-1}{5x+2}$$

Notice that the values for the independent variable start at 3 and increase by 2. We will have to make that adjustment in the table settings.

The calculator steps are below. Please follow along with your calculator.

| Calculator Steps | TI-84 Plus CE | TI-83 Plus |
| --- | --- | --- |
| “2ND" → “Y=”TI-84 Plus uses “ALPHA” and “Y=” to enter fraction bar | Entering the function Y1=(6x-1)/(5x+2) in the TI-84 Plus CE graphing calculator. | Entering the function Y1=(6x-1)/(5x+2) in the TI-83 Plus graphing calculator. |
| “2ND" → “WINDOW”Press down to access settingsTblStart = 3ΔTbl = 2 | The table setup menu in the TI-84 Plus CE graphing calculator. | The table setup menu in the TI-83 Plus graphing calculator. |
| “2ND" → “GRAPH” | The table for the function Y1 = (6x-1)/(5x+2) in the TI-84 Plus CE graphing calculator. The output values are all fractions. | The table for the function Y1 = (6x-1)/(5x+2) in the TI-83 Plus graphing calculator. The output values are all decimals. |

The TI-84 Plus family outputs fractions whenever you use the fraction bar. We want decimals for this course. One option is to type the function just like with the TI-83 Plus. The other is to use a calculator function to convert to decimals. The steps are below.

| Calculator Steps | TI-84 Plus CE |
| --- | --- |
| “2ND" → “Y=”Go back to the Y= menu to edit the function. | Entering the function Y1=(6x-1)/(5x+2) in the TI-84 Plus CE graphing calculator. |
| “MATH” → 2: ►DecConverts the answers to decimals | The Math menu in the TI-84 Plus CE graphing calculator. Option 2 converts numbers to decimals.Entering the function Y1=(6x-1)/(5x+2) in the TI-84 Plus CE graphing calculator. The decimal conversion function is at the end of the function  Y1=(6x-1)/(5x+2). |
| “2ND" → “GRAPH”The table is now in decimals | The updated table for the function Y1 = (6x-1)/(5x+2) in the TI-84 Plus CE graphing calculator. The output values are all decimals. |

# Example 2

For our second example, we will create a table of values for $y=\sqrt{x}-\frac{x}{20}$ for $x=0, 0.2, 0.4, …$.

## Solution

The process is very similar to the last problem. Follow along on your calculator.

| Calculator Steps | TI-84 Plus CE | TI-83 Plus |
| --- | --- | --- |
| “2ND" → “Y=”TI-84 Plus uses “ALPHA” and “Y=” to enter fraction bar | Entering the function Y1=\sqrt(x) - x/20 in the TI-84 Plus CE graphing calculator. | Entering the function Y1=\sqrt(x) - x/20 in the TI-83 Plus graphing calculator. |
| “2ND" → “WINDOW”Press down to access settingsTblStart = 0ΔTbl = 0.2 | The table setup menu in the TI-84 Plus CE graphing calculator. | The table setup menu in the TI-83 Plus graphing calculator. |
| “2ND" → “GRAPH”This time, the TI-84 converts answers to decimals due to the square root. | The table for the function\sqrt(x) - x/20 in the TI-84 Plus CE graphing calculator. The output values are all decimals. | The table for the function\sqrt(x) - x/20 in the TI-83 Plus graphing calculator. The output values are all decimals. |