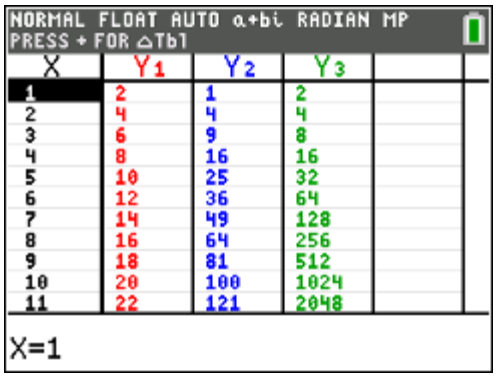
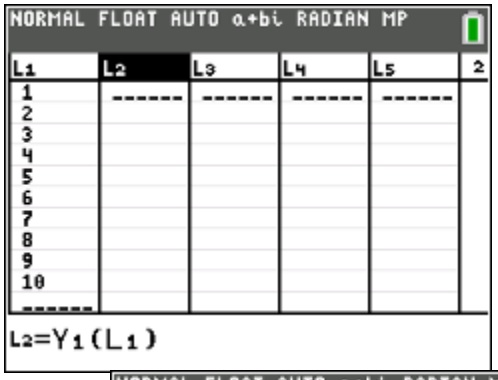
Three Features of the Calculator to Further Understanding

Remember that more resources are available at education.ti.com

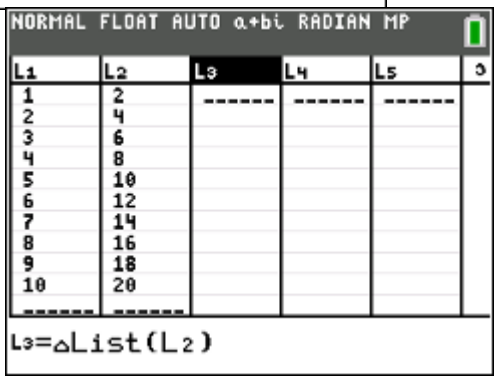
1. Noticing numerical patterns in functions:



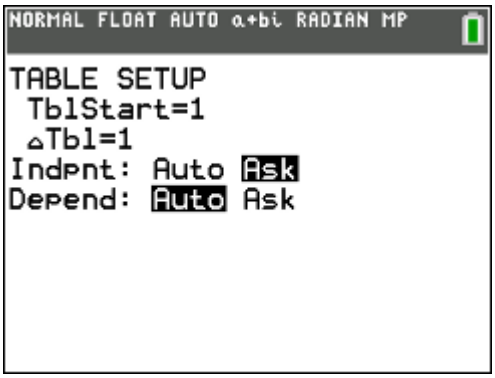
A) Press [y=] and type in the function to be investigated in Y1. Press [2nd][window] and set the table to start wherever you wish (usually 0 or 1) and whatever you wish to count by (usually 1). Keep both the independent and the dependent variables to automatically show (**Auto**). Ask students to look for patterns before they see the graph and see if that helps them sketch the function before they graph it.



B) To check to see if students discovered the pattern, press [stat] and type the x-values in L1. Move the cursor over to L2 and move the cursor up so that the L2 is highlighted. Type Y1(L1) and press [enter]. (Y1 can be found under [vars], toggle right to **y-vars**, and down to **function**. L1 is found by pressing [2nd] **2**.) This should produce the function values for the x-values listed. In order to calculate the change in y-values (successive differences), move the cursor over to L3 and to up to highlight L3. Press [2nd][stat] to get to **list**, toggle over to **OPS**, and choose **7) ΔList.** Type in the chosen list (L2) and press [enter].

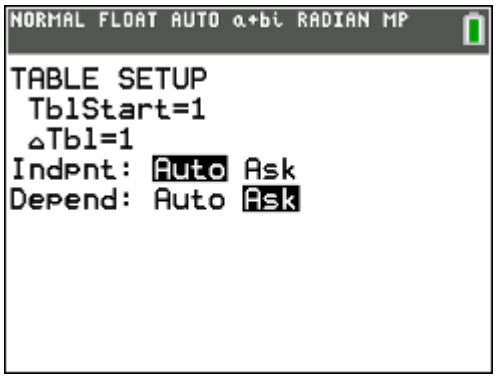


2. Playing "Guess My Rule":



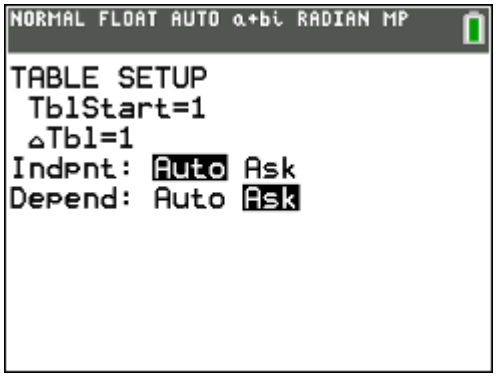
Before class, type functions in [y=] . Also change the table setting so that the dependent variable has **Auto** highlighted, but the independent variable has **Ask** highlighted. Press **table** ([2nd][graph]), determine x-values (perhaps by letting students suggest values, using a random number generator or rolling a die) and type those numbers in one at a time. The y-values of those functions should automatically show. Continue until students can write equations for the functions. Don't forget to change the table setting back to **Auto** when the game is over.

3. Playing "Fill the Pattern":

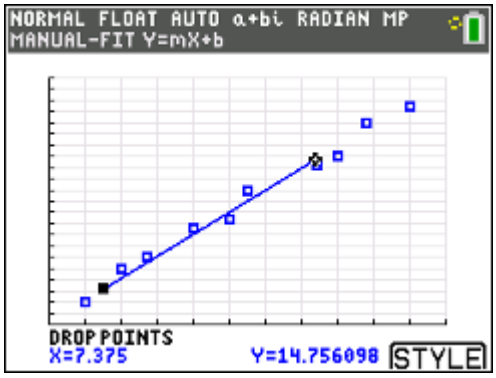
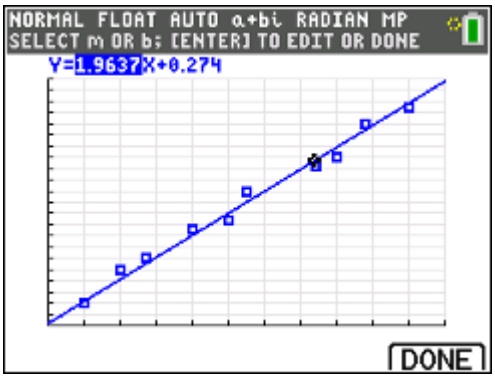
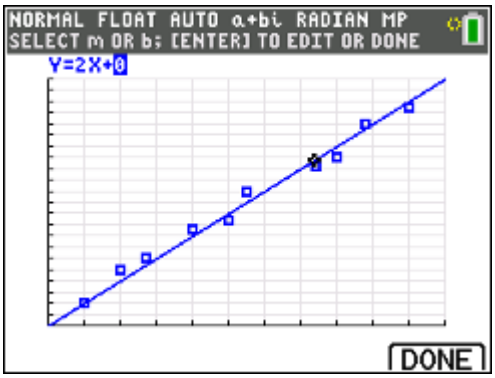


Before class, type functions in [y=]. Also change the table setting so that the dependent variable has **Ask** highlighted, but the independent variable has **Auto** highlighted.
Press **table** ([2nd][graph]), determine which y-values you wish to show and press [enter] in those cells. Show enough cells so that students can complete the pattern. Don't forget to change the table setting back to **Auto** when the game is over.

4. Using the Transformation APP.



Press [apps] and turn on the Transformation App by pressing any key. You may type functions in Y1 and Y2 and you may use the variables A, B, C, and D. If you have the CE, you can back the cursor over the color box and press [apps] to find many built-in functions beside the →Y1 (or →Y2). Press [window] and toggle up to access the settings. From there you can input initial values of your variables and set the step. Then press [graph] and move the cursor up or down to change the desired variable and left or right to change the value of the variable. Let students discover how transformation variables affect the graphs of functions.

5. Using Manual Fit:

Create a Scatter Plot of the desired data. Press [stat] , cursor over to **CALC** and move the cursor up to find **D: Manual-Fit Y = mX + b** . Press [enter] and either [alpha][trace] or [vars] , y-vars, function to choose where to store your equation. Toggle down to Calculate and press [enter] . Move the cursor to appropriate locations and press [enter] to drop two points. The calculator will show the equation of the line drawn. You can change the slope and y-intercept by moving the cursor to the indicated variable and typing over it. When you are satisfied with your graph, press [graph] to save your equation. Let students draw their own their "Line of Good Fit".