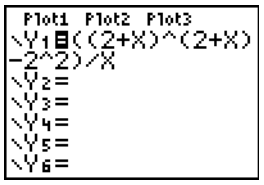
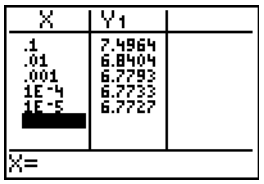
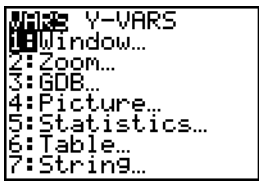
Suppose you want to find the instantaneous rate of change of $f(x) = x^x$ at $x = 2$. Start by working out the instantaneous rate of change from the definition:

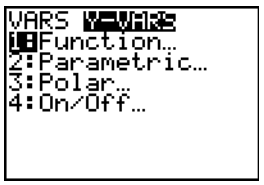
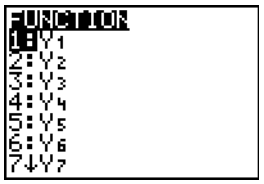
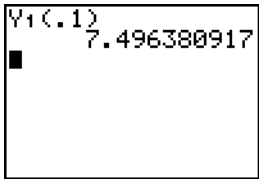
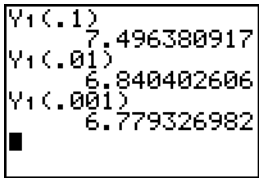
$$\lim_{h \to 0} \frac{f(a+h) - f(a)}{h}$$

Using the function above with $a = 2$ yields

$$\lim_{h \to 0} \frac{(2+h)^{2+h} - 2^2}{h}$$

This is not a limit that we can manipulate to cancel out the h. Instead we need to evaluate this quotient for smaller and smaller values of h like .1, .01. .001, ect. The easiest way to do this is to utilize your calculator.

1. Start by pressing the [Y=] to enter the equation editor. The key to these steps is to type the quotient above into Y_1, but with the h replaced by x. This allow us to use the calculator to substitute values in place of x. Type the formula as you see to the right…be careful with your parentheses.	
2. We'll first try to use the tables in your calculator to do this. To set up the tables, press [2nd][Y=] to enter TBLSET. The settings for TblStart and ΔTbl are irrelevant. Make sure Indpnt is set to Ask and Depend is set to Auto. Move the cursor to the appropriate settings and press [ENTER] to highlight the setting as shown to the right.	
3. Press [2nd][GRAPH] to make a table. Under the X column, type .1 followed by [ENTER]. This will generate the value of the quotient under Y_1. Enter the other values shown to the right followed by [ENTER]. The smaller that the x value (or in our case h) is, the closer Y_1 gets 6.773. This is fine if you are only rounding to a few decimal places, but what if you need more decimal places? You are constrained by the column width as to how many decimal places you can work with.	
4. To show more decimal places, we'll need to use function notation on the calculator. Press [2nd][MODE] to quit and return to the Home Screen. Press [CLEAR] to clear the home screen. 5. Now we need to access the names of your functions to use function notation. Press [VARS] to access the variables on your calculator.	

6. Press ▶ ENTER to select Y-VARS and Function.	
7. Press ENTER to select Y_1, the location of the quotient.	
8. Press (. 1) ENTER to get the screen to the right. In doing this, you are telling the calculator to substitute X = .1 into the quotient. This is equivalent to setting h = .1 in the quotient.	
9. Repeat steps 5 through 8 with smaller and smaller inputs like those shown to the right.	
10. You can repeat this process for values as small as you need. Notice that the smaller that the input gets, the more you decimal does not change. You'll need input to be small enough so that your desired umber of decimal places does not change. In this case, it appears that the limit is approximately 6.7726.