Objective: Interpret a linear function from an algebraic, numerical, graphical, and verbal perspective and extract information relevant to the phenomenon modeled by the function.

A function is a special relationship where each input has a single output. It is often written as "f(x)= …." where x is the input value and f(x) is the output or "y" value.

A function can be represented in various forms such as ordered pairs or in tables (numerical form), an algebraic form (using symbols or a formula), or in a graphical form (on an x/y plane).

Example A. Consider the data which represents the average monthly high temperatures in one Southern US city during the year 2020.

Jan	Feb	Mar	Apr	May	Jun
47	52	61	71	78	86
Jul	Aug	Sep	Oct	Nov	Dec
89	89	82	72	60	49

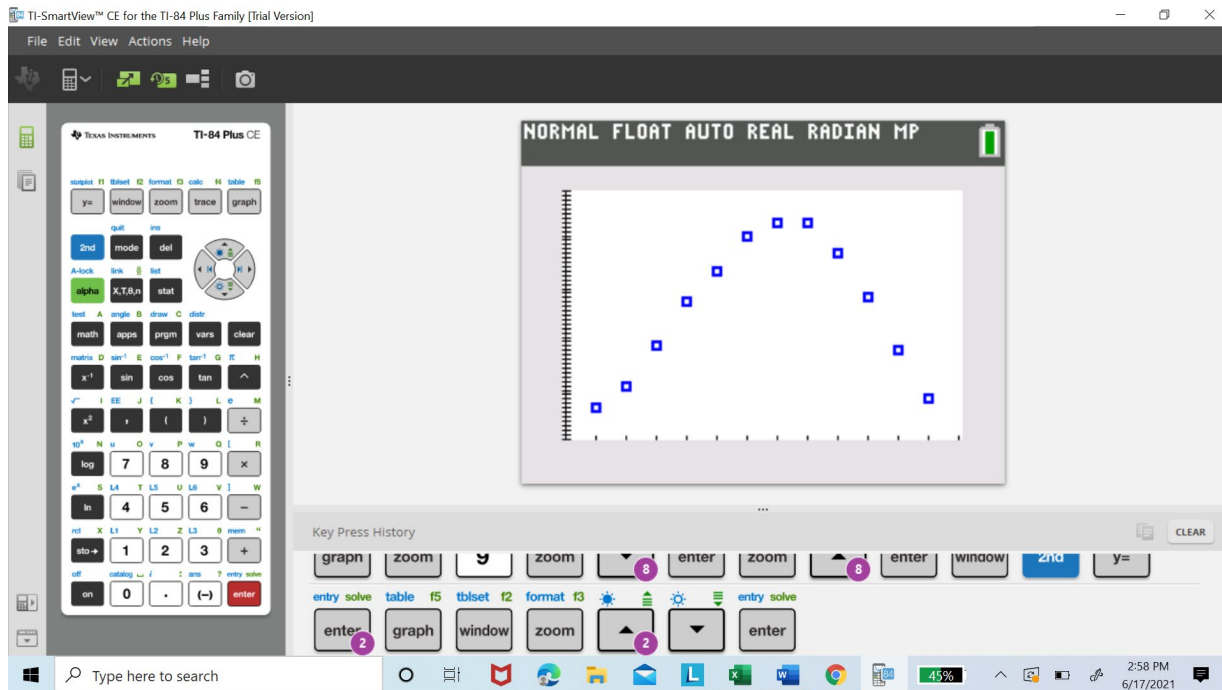We could write this data in an x/y chart or in table form.

Month (Using January =1)	Temperature
1	47
2	52
3	61
4	71
5	78
6	86
7	89
8	89
9	82
10	72
11	60
12	49

1. What are the inputs/outputs?

2. Using your calculator, enter the entire data set to create a scatterplot. Press, STAT, EDIT, and enter your x-values in L1 and y-values in L2.
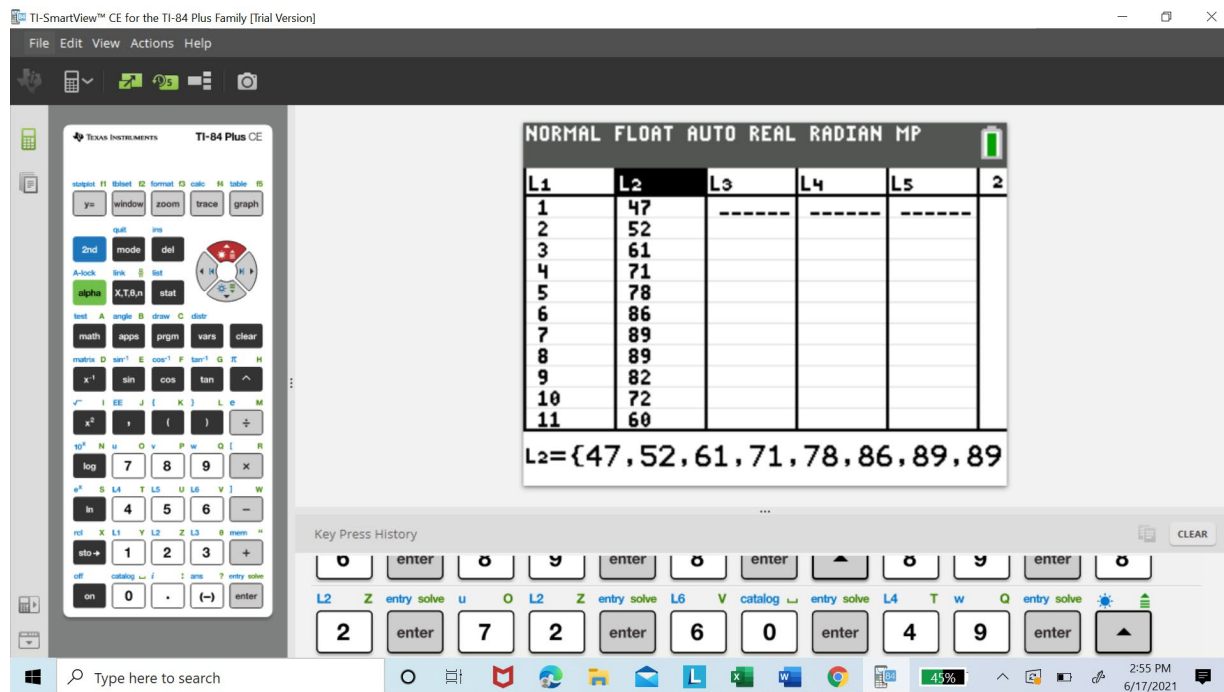
3. How should we adjust the window to see the data?

4. Determine the slope between the points (1, 47) and (4, 71). What would this represent? What does "average rate of change mean"?

5. Using the same points as in Question 4, write an equation to describe the line that passes through these points. Write your equation in y = mx + b form and then write the equation in function form using T as the name of the function output and x as the function input.

6. Enter the equation that we found between the two selected data points for January and April above and view these on the calculator.

7. Using the function that you determined in Question 4, what would T (3) mean? Is this the same value as in the data table? What would T (10) mean?

8. Would this function be a good representation for the entire data set? Why or why not?

Let's move to the next tile to see what other types of functions might be useful.