

Section 8.3: An Introduction to Functions

MATH 102 Course Outline Unit VI

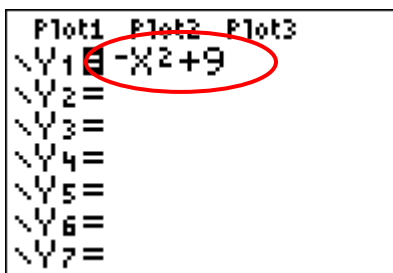
Objective: Evaluate functions using a graphing utility.

After showing students how to evaluate functions using paper and pencil, you can show students how to do this using the graphing calculator. Here are six different methods.



Let's use the following as an example: Evaluate $f(-2)$ for $f(x) = -x^2 + 9$.

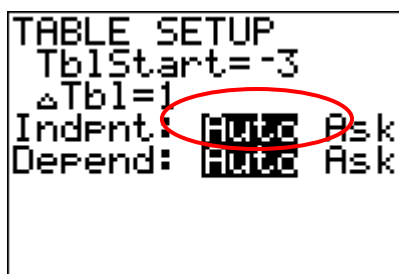
The first five methods require that we enter the equation of the function into the

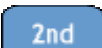

calculator in the  editor (reminding students that $f(x) = y$).



Method 1: Scroll through the **TABLE**.

1. First make sure the TBLSET( ) has **Indpnt: Auto** selected:





2. Then go to the **TABLE**( ) and scroll to find the y-value for the given x-value.

X	Y ₁	
-3	5	
-2	5	
-1	5	
0	5	
1	5	
2	5	
3	5	

Y₁=5

Method 2: Use **Ask** and the **TABLE**.


1. First make sure the TBLSET( ) has **Indpnt: Ask** selected:

TABLE SETUP	
TblStart=-3	
ΔTbl=1	
Indpnt: Auto	
Depend: 	Ask

2. Then go to the **TABLE**( ), enter the given x-value.

X	Y ₁	

X=-2

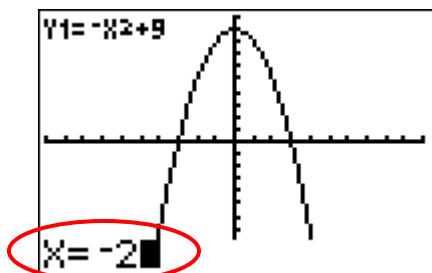
3. Finally, press  , and the corresponding y-value is generated.

X	Y ₁	
-2	5	

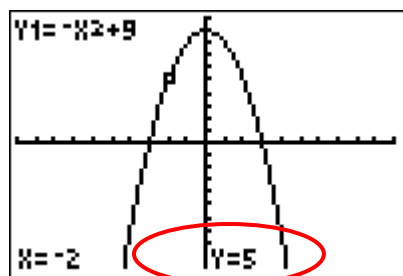
Y₁=5

Method 3: Use **TRACE**.

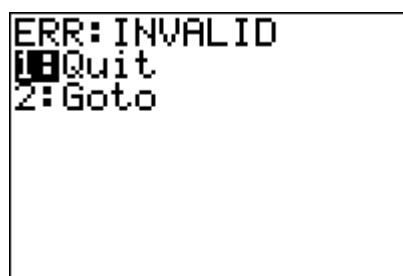
1. Go to **GRAPH**, press **TRACE**, and enter the given x-value.



2. Press **ENTER**, and the corresponding y-value is generated.

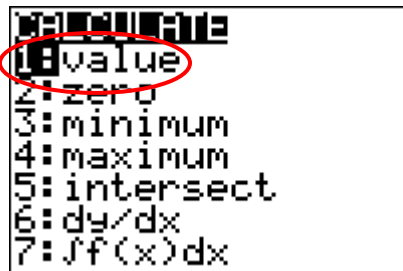


Note: If you enter an x-value outside of the current viewing window, the following error will be generated.

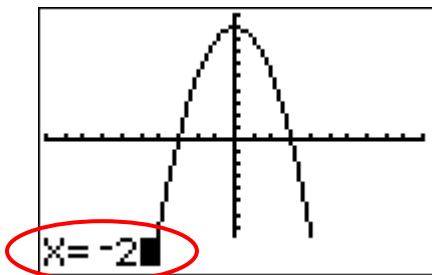


Method 4: Use **CALC** and **Value**.

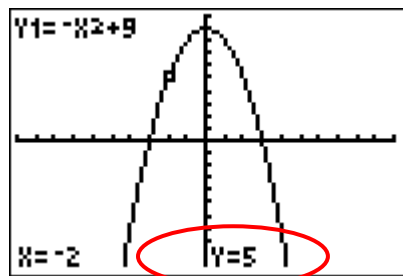
1. Go to **CALC**(**2nd** **TRACE**).



2. Select **1:value**, press , and enter the given x-value.



3. Press  and the corresponding y-value is generated.




Note: If you enter an x-value outside of the current viewing window, you will receive the same error message as Method 3.

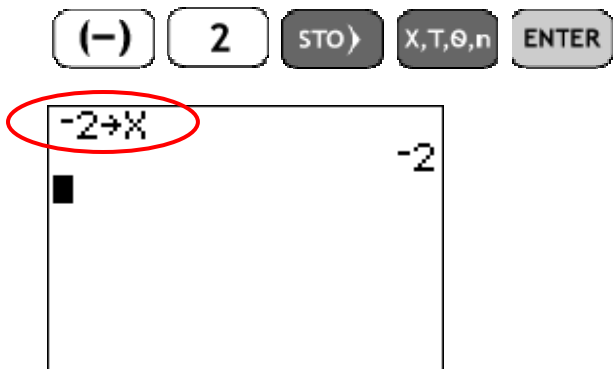
Method 5: Use $y_1(x)$ from the home screen.

This method is illustrated in Figure 19 on p. 557, but this method involves a lot more “digging” to find the necessary menu functions, so it is not recommended.

One additional method requires ONLY work on the home screen.

Method 6: Use .

1. Store the given value of x in the calculator as X:



2. Then enter the function expression (in this case $-x^2 + 9$), press

, and the function value is generated.

