

VALUE
TI-83 QUICK REFERENCE

The VALUE feature on the TI-83 is used to evaluate functions for a specific value of X.

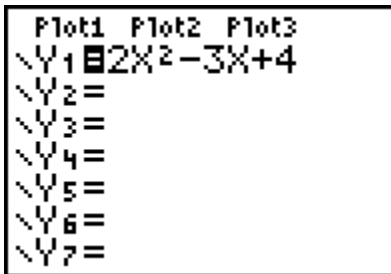
1. Enter the function(s) in the Y= screen. Ensure that the function or functions are selected.
2. Press 2nd TRACE^{CALC} to activate the CALC menu.
3. Press 1 to select the VALUE feature. The graph screen will be displayed and you will be prompted for a value of X.
4. Type in the value desired for X** and press ENTER. The function value, Y, will be displayed for the 1st selected function and the function definition will be displayed in the upper left-hand corner of the screen.
5. If more than one function is selected, you may press the up or down arrows to cause function values for the other selected functions to be displayed.
6. To display function values for other values of X, type the desired value for X and press ENTER.
7. Press 2nd MODE^{QUIT} to return to the HOME screen.

** The value of X must be between Xmin and Xmax. If you wish to use other values, the WINDOW must be adjusted.

EXAMPLE
VALUE - USING THE TI-83

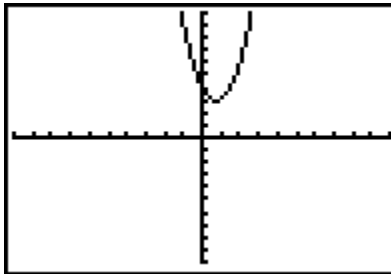
You will evaluate the function $f(X) = 2X^2 - 3X + 4$ for various values of X . You will be instructed step-by-step. **After** you execute a step, your screen should appear as indicated below the instruction.

Enter the function, $2X^2 - 3X + 4$, in the $Y=$ screen. Ensure that it is selected. For our purposes, it is best if this is the only function selected.

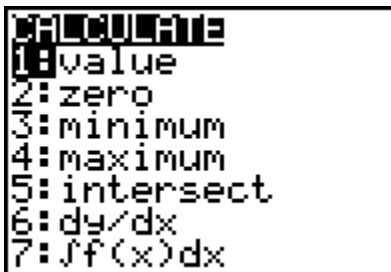


```
Plot1 Plot2 Plot3
\Y1=2X^2-3X+4
\Y2=
\Y3=
\Y4=
\Y5=
\Y6=
\Y7=
```

You may graph the function if you wish. This is not necessary but may be useful to ensure that a proper window is set. You will see the function graphed below with a ZOOM STANDARD.

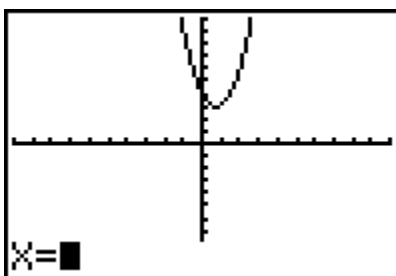


Press $\boxed{2nd}$ \boxed{CALC} to activate the CALC menu. This menu may be activated from the HOME, GRAPH or any other screen.

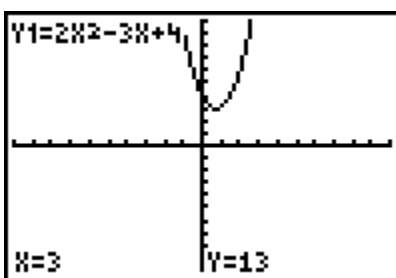


```
CALCULATE
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
7:∫f(x)dx
```

Press to select the value feature.

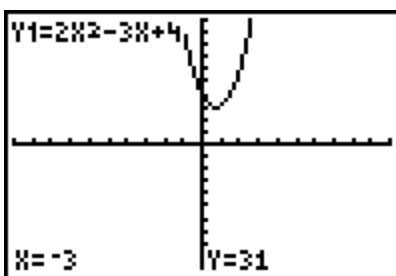


Press and .



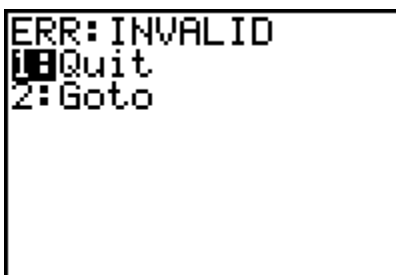
Your screen indicates that $Y_1 = 2X^2 - 3X + 4$ and that $Y_1 = 13$ when $X = 3$.

Press , , and .



$Y_1 = 31$ when $X = -3$.

Now press , , and .



With a ZOOM STANDARD $X_{min} = -10$ and $X_{max} = 10$. Therefore the value entered for X , 33, is not within the acceptable limits and an error message is displayed.

You may press to quit and return to the HOME screen or to return to the GRAPH screen.

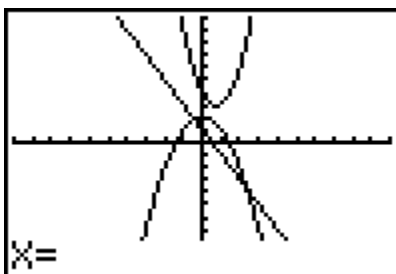
You will now use the VALUE feature with more than one function selected. You have $2X^2-3x+4$ entered in Y_1 . Enter $1-2X$ and $2-X^2$ in Y_2 and Y_3 , respectively.

```

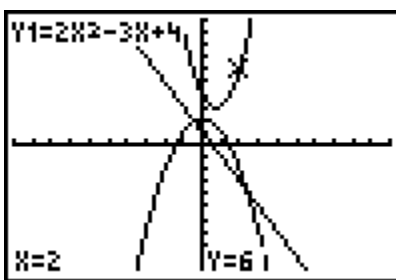
Plot1 Plot2 Plot3
\Y1=2X^2-3X+4
\Y2=1-2X
\Y3=2-X^2
\Y4=
\Y5=
\Y6=
\Y7=

```

Now press $\boxed{2nd}$ \boxed{CALC} \boxed{TRACE} $\boxed{1}$ to activate the VALUE feature.

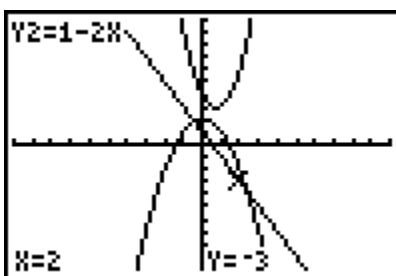


Press $\boxed{2}$ \boxed{ENTER} .



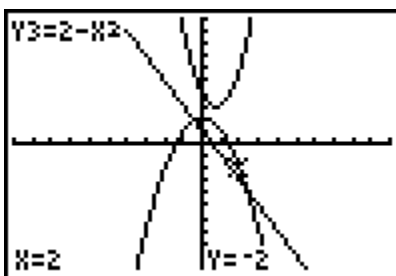
Observe that Y_1 is displayed in the upper left-hand corner. You can see that $Y_1=6$ when $X=2$.

Now press the down arrow.



You now see Y_2 displayed in the upper left-hand corner of the screen. At the bottom of the screen you can see that $Y_2=-3$ if $X=2$.

Press the down arrow again to see the value for Y_3 .



You can use either the up or down arrow to change among the various selected functions.

Remember that this feature is typically activated from the $Y=$ screen, the HOME screen, or the GRAPH screen. To return to the HOME you usually must use $\boxed{\text{2nd}} \overset{\text{QUIT}}{\boxed{\text{MODE}}}$. Also keep in mind that the values you enter for X must be between X_{\min} and X_{\max} . Adjust your WINDOW to find other values.