



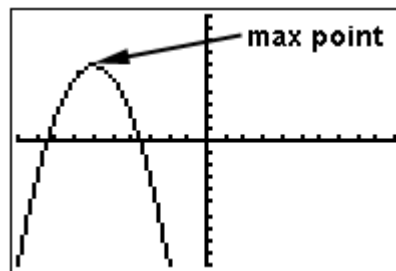
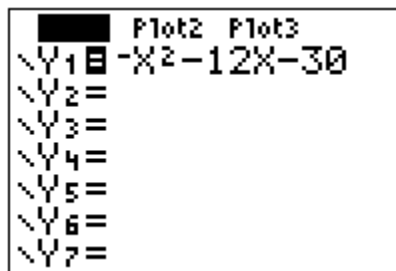
Calculator Appendix M



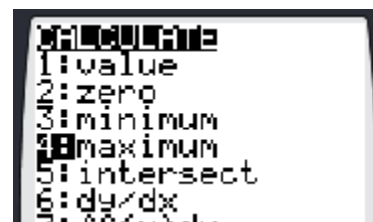
(Finding maximum and minimum points)

A **maximum point** of a function is a local point which has a greater value than all other points in its neighborhood. A function can have several maximums. A minimum point is similarly defined.

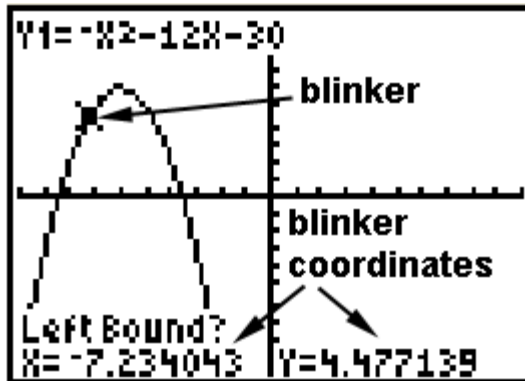
Consider the function $y = -x^2 - 12x - 30$. Our task is to find its single maximum. Obviously it's an "upside down" parabola and has a maximum point at the vertex of the parabola. Begin by pressing the **Y=** button and entering the function as **Y1**. Then press **GRAPH**.



To initiate the process of finding the maximum point, press **2nd | CALC**. From the resulting menu choose **4: maximum** by pressing the **DOWN ARROW** button thus moving the cursor down to **4:** and then pressing **ENTER**, or by just pressing the **4** button.

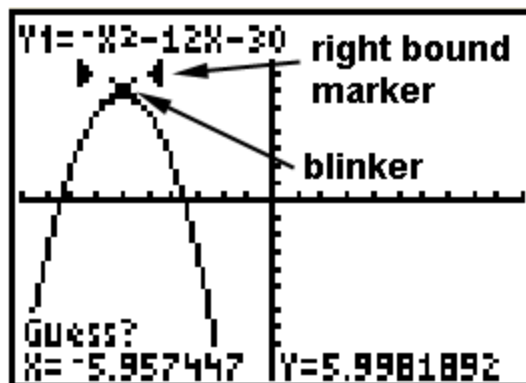
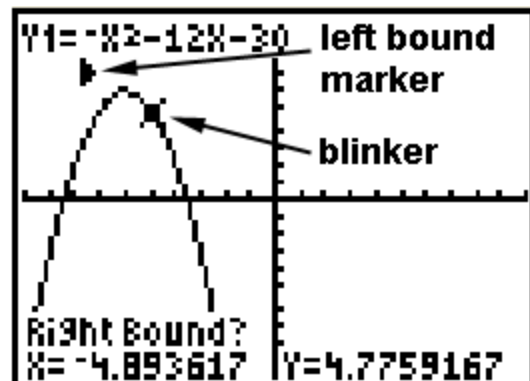


The instructions below will require moving the blinker with the **LEFT/RIGHT ARROWS**. Sometimes the blinker is not visible and it's not clear which way to move. Use the coordinates of the blinker at the bottom of the graph screen along with the zoom box coordinates to decide.



The next screen will show the graph along with a question, “Left Bound?”. Move the blinker with the **LEFT/RIGHT ARROWS** until it is clearly to the left of the desired maximum point. Press **ENTER** when satisfied with the position.

At this point another question will appear asking for the “Right Bound?”. Move the blinker with the **LEFT/RIGHT ARROWS** until it is clearly to the right of the desired maximum point. Press **ENTER**.



Finally, a third question is presented asking for a, “Guess?”. Using the **LEFT/RIGHT ARROWS**, position the blinker approximately over the maximum point and press **ENTER**.

The coordinates of the maximum point are now presented at the bottom of the screen.

Minimum points are found in a similar fashion.

