

Math Modeling
Using the Trace Program

The TRACE program allows you to find the zeros, minimum or maximum values of a parabola. Using the quadratic equation: $x^2 + 8x + 7 = 0$, graph


FINDING THE ZEROS:

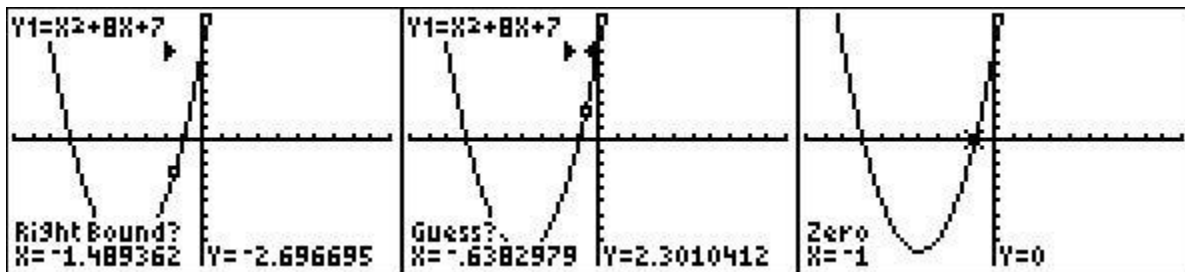
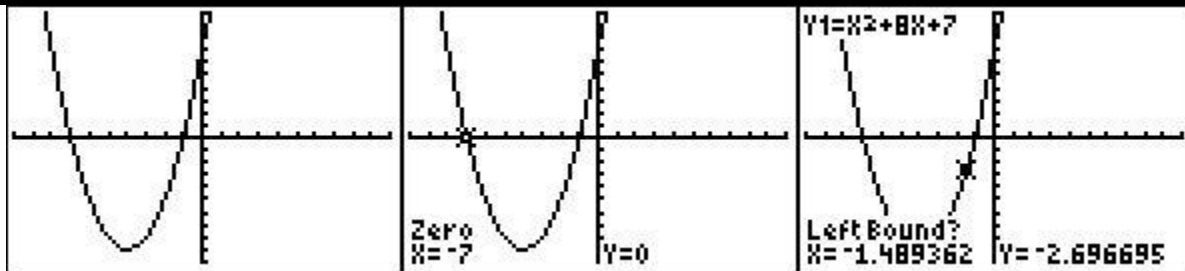
Below are the necessary key strokes for:



you will need to arrow to the left or right as necessary to bound or identify

the zero you want.  or 

Once you have the bound press 



Using the Quadratic Formula, what values do you get for x?

$$x^2 + 8x + 7 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = 1, \quad b = 8, \quad c = 7$$

FINDING A MINIMUM:

Using the quadratic equation: $ax^2 + bx + c = 0$, graph

Below are the necessary key strokes for:



Using the left and right arrows as necessary
to bound your minimum

TO FIND A MAXIMUM:

when $-ax^2 + bx + c$



Follow the same process as above except using **2nd** **TRACE** **4** to find the maximum

For $x^2 + 8x + 7 = 0$:

