How To Graph A Piece-Wise Function on the TI-84+ Calculator

Consider the piece-wise function below.

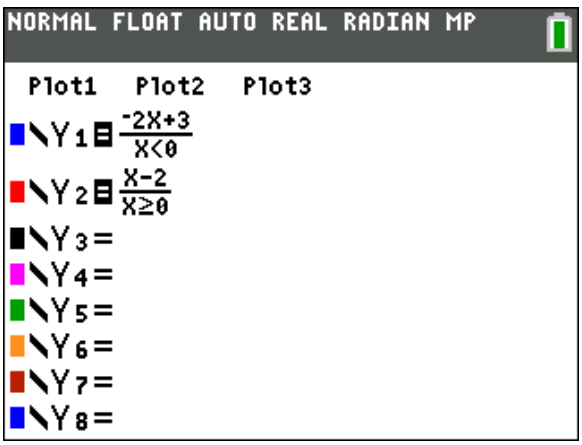
$$f(x) = \begin{cases} -2x + 3, & x < 0 \\ x - 2, & x \geq 0 \end{cases}$$

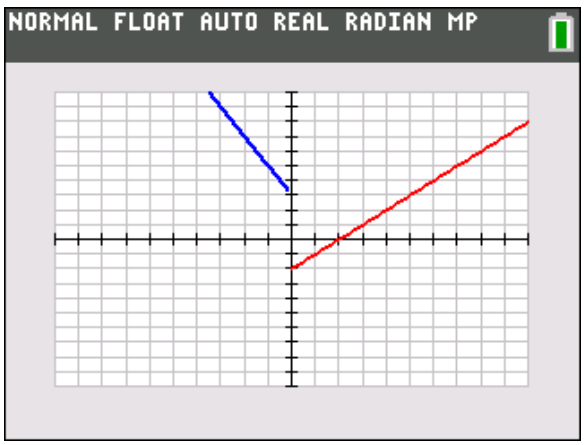
The graph should display $y = -2x + 3$ but only for the domain $x < 0$. No values should appear for the domain $x \geq 0$. To accomplish this, use the [TEST] menu (press [2nd] [MATH]).

Each of the operators in the TEST menu will return a value of 0 if the statement is false and a value of 1 if the statement is true.

In **Y1**, enter the expression $\frac{-2x+3}{x<0}$ in MathPrint mode or $(-2x + 3)/(x < 0)$ in Classic mode.

In **Y2**, enter the expression $\frac{x-2}{x\geq 0}$.





Try using TRACE with the piece-wise graph. What happens when you trace to an x-value outside of the domain? Use [▲] or [▼] to move between Y1 and Y2.

Now try these:

1. $f(x) = \begin{cases} -x, & x < 0 \\ x, & x \geq 0 \end{cases}$

2. $f(x) = \begin{cases} 4 - x^2, & x < 2 \\ 2x + 1, & x \geq 0 \end{cases}$