

Graphing a system of Inequalities on the TI83-TI84 Calculator

We will graph the following system of inequalities

$$x + y < 5$$

$$2x - y \leq 4$$

First we must solve each of these for y

Subtracting x from both sides of the first we have

$$y < 5 - x \text{ This equation is ready to enter into the calculator}$$

We will subtract 2x from both sides of the second equation

$-y \leq 4 - 2x$ next we will multiply both sides by -1. When we multiply or divide both sides by a negative number we must switch the inequality signs direction.

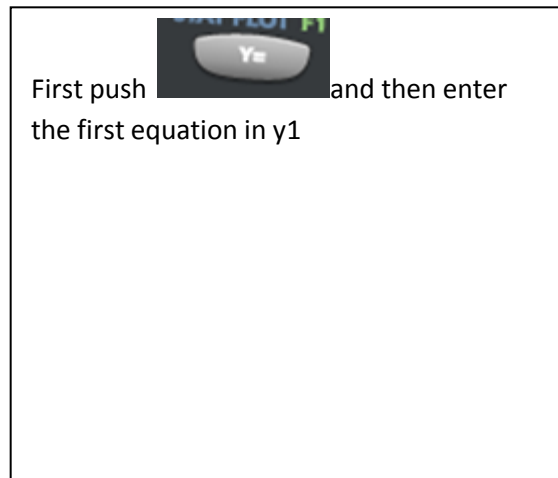
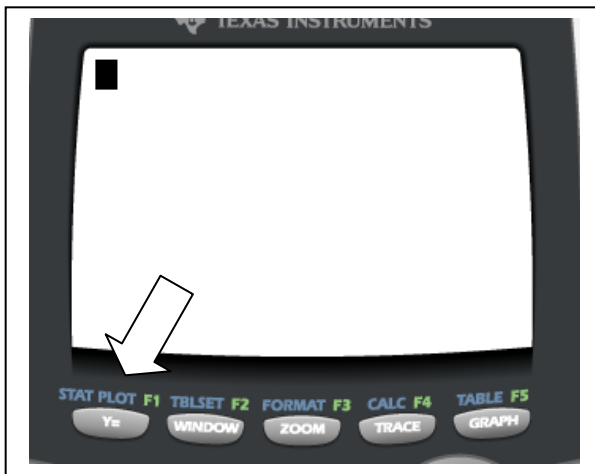
$$y \geq -4 + 2x$$

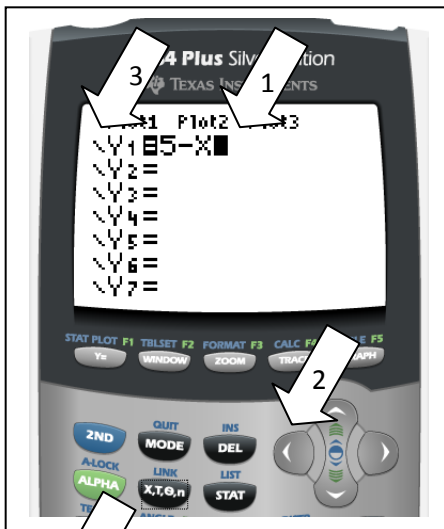
$$y \geq 2x - 4$$

We now have our system in a form we can enter into the calculator

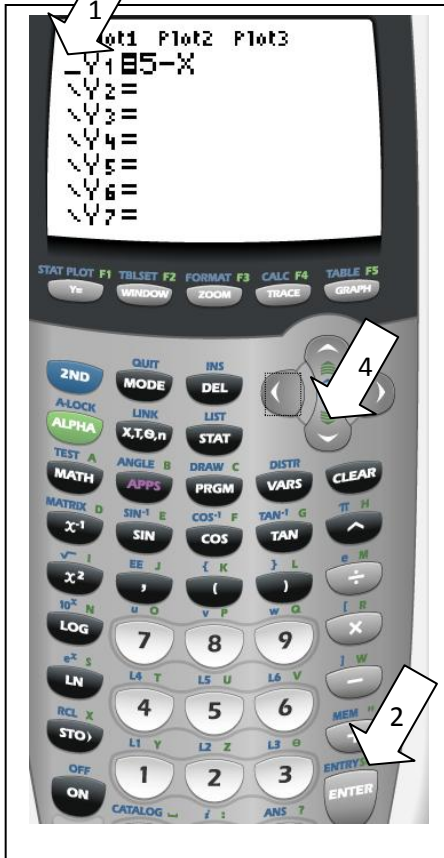
$$y < 5 - x$$

$$y \geq 2x - 4$$

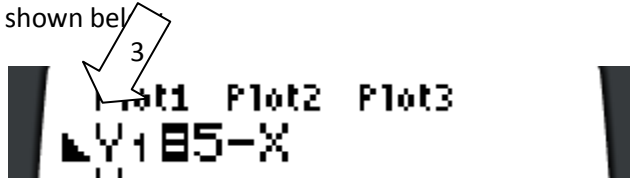




When you finish entering the equation the cursor will be blinking at arrow 1. Use the left key at arrow 2 to move the cursor all the way to the left at arrow 3.

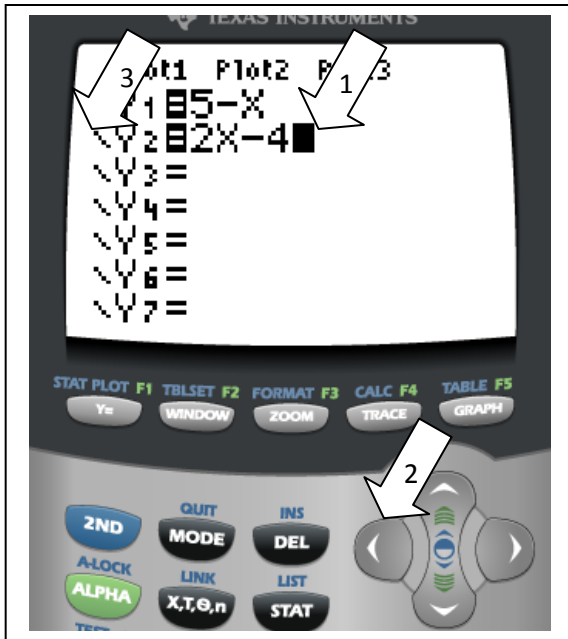


Once the cursor is at the position shown by arrow 1 push enter (arrow 2) repeatedly till we get the < than symbol shown below

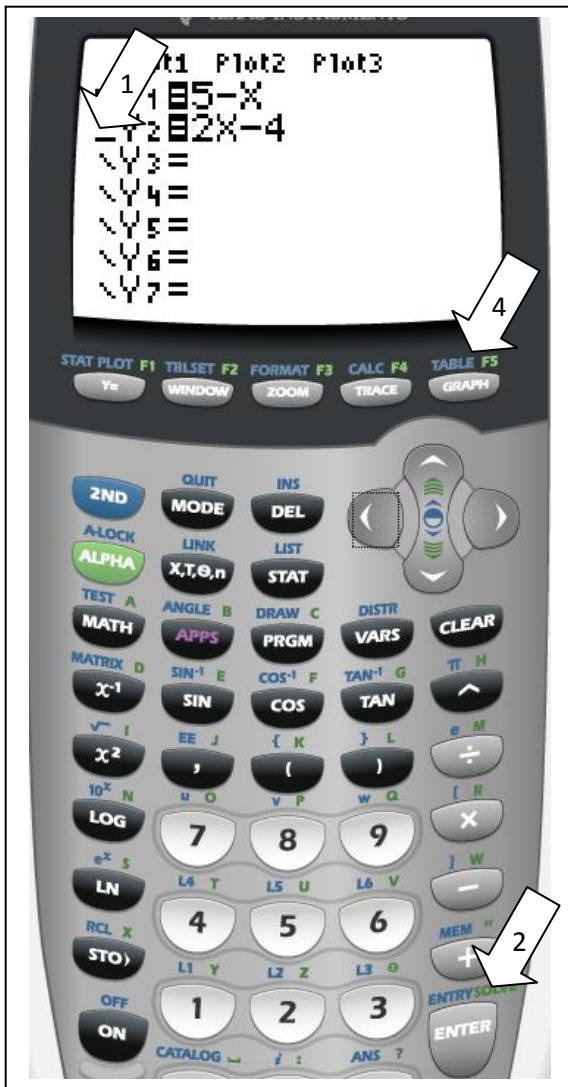


Use the down arrow (arrow 4) and right arrow to move to Y2 and to the right of the = sign. Now enter the second equation.

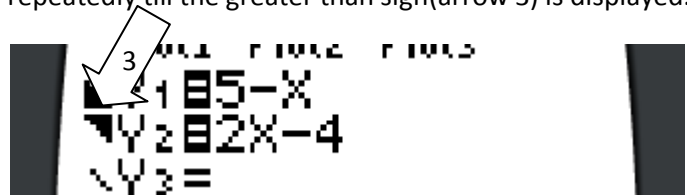
$$y \geq 2x - 4$$



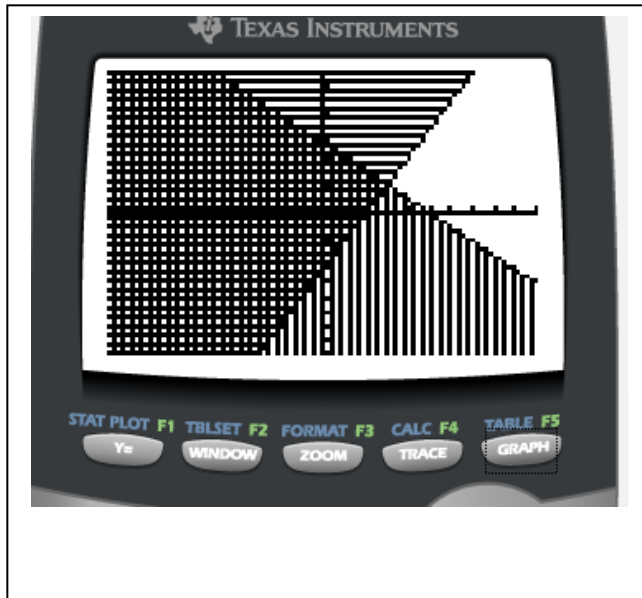
We must repeat the process of moving the cursor from arrow 1 to arrow 3 using the left arrow at arrow 2.



With the cursor at arrow 1 press enter at arrow 2 repeatedly till the greater than sign (arrow 3) is displayed.



Notice we matched the appropriate sign based on the equation. Now press graph (arrow 4)



Notice the area of the first equation is vertical and the area of the second equation is horizontal. The area of the solution is the cross hatched area. Also notice there is no capability to make the lines dotted, they will be solid. You will have to draw the proper line if you are transferring the solution to a test paper.