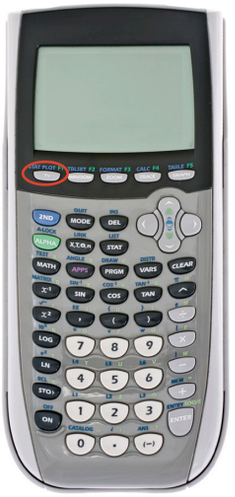
TI-83/TI-84™ Calculator Guide

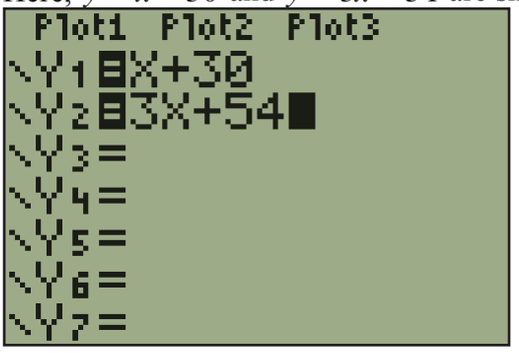
Although Texas Instruments TI-83™ or TI-84™ calculators are not the only graphing calculators that can be used with this course, they are common, so specific instructions for their use are included here. The instructions for the two calculators are the same.

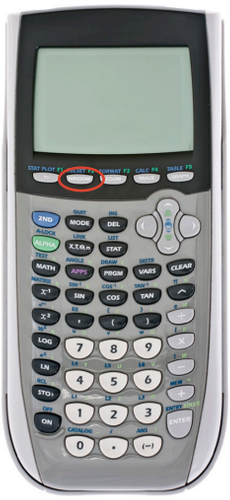
Graphing Linear Equations using a TI-83/TI-84™ Calculator



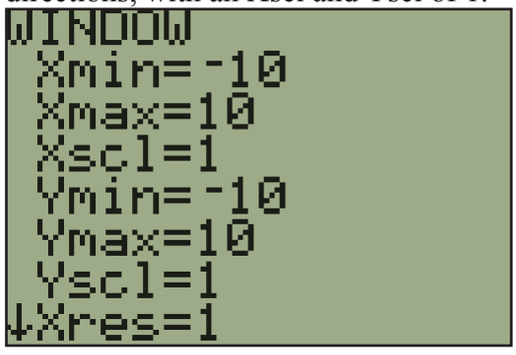
- To graph a linear system of equations, first isolate the y-variable in each equation. If variables other than x and y are used, temporarily replace them with x and y for graphing purposes. For example, $A = 2B + 9$ can be entered as $y = 2x + 9$.
- Turn on the calculator and press the Y= button.

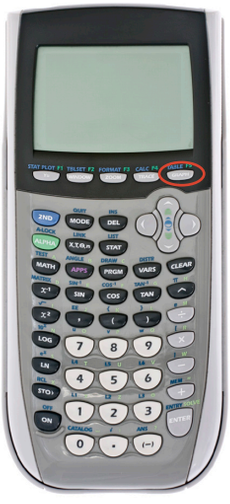
- If necessary, delete any existing equations using the CLEAR button.
- Enter the first equation in Y1 and enter the second graph in Y2. Here, $y = x + 30$ and $y = 3x + 54$ are shown.



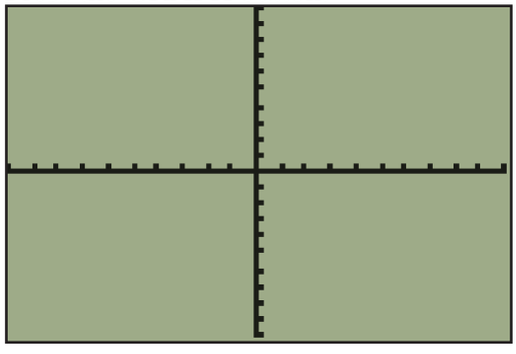


- Press the WINDOW button to control the horizontal and vertical scales and how far each axis extends in each direction. If you are unsure what window setting to use, start with –10 to 10 in both directions, with an Xscl and Yscl of 1.

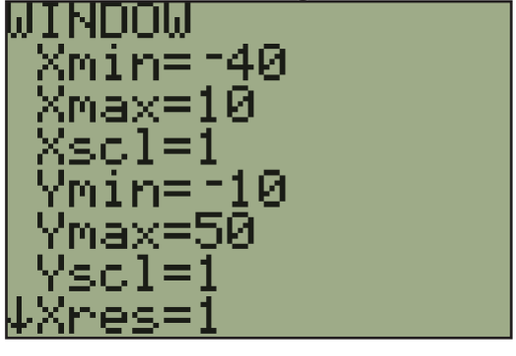




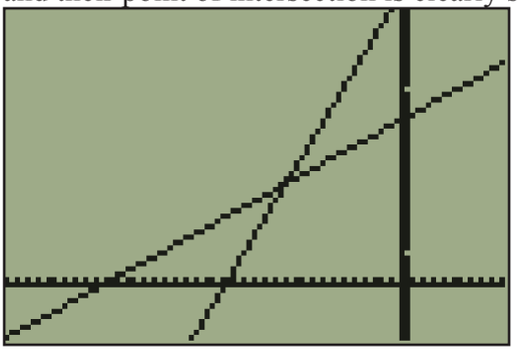
- Press the GRAPH button.

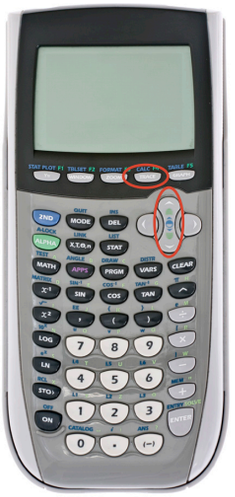


- The graph did not appear. This usually means the current window setting doesn't include the lines. You can guess and test using the WINDOW settings or you can examine the equations to predict a better window. The first equation has a slope of 1 and a *y*-intercept of 30, and the second equation has a slope of 3 and a *y*-intercept of 54. The *y*-intercepts are both above the current window and both lines run from the lower left to upper right. This means lower *x*-values and higher *y*-values need to be included in the modified window setting. Press the WINDOW button and try lowering the Xmin to –40 and raising the Ymax to 50.

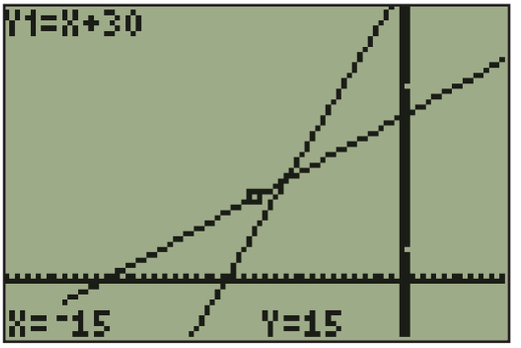


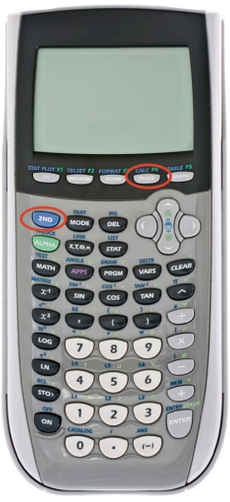
- Again, press the GRAPH button. This time, the two lines show up and their point of intersection is clearly seen.



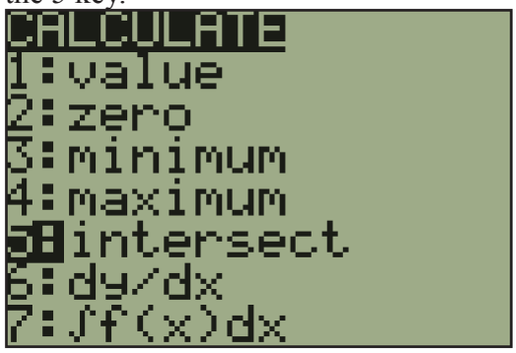


- Pressing the TRACE button will allow you to see the Y1 line's equation. Pressing the up or down arrow keys will allow you to switch between lines.

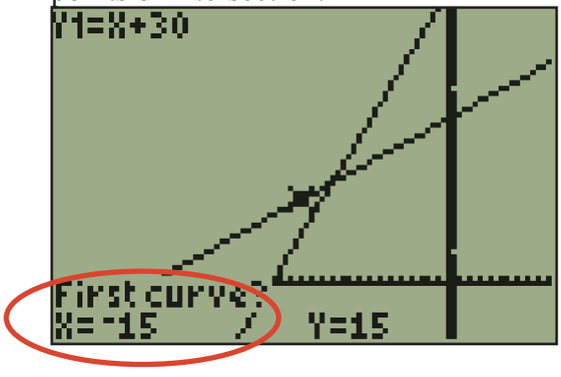




- To determine the point of intersection of the two lines, press 2nd CALC. Either use the down arrow key to select 5:intersect or press the 5 key.



- The calculator asks for the first curve. Select one of the lines, and press ENTER. The calculator will then ask for the second curve. Select the other line and press ENTER. Finally, the calculator will ask for a guess. Move the cursor until it is near the point of intersection and press ENTER. The guess allows the calculator to pick the correct point of intersection for systems that have multiple points of intersection.



- The coordinates of the point of intersection are shown at the bottom of the screen.