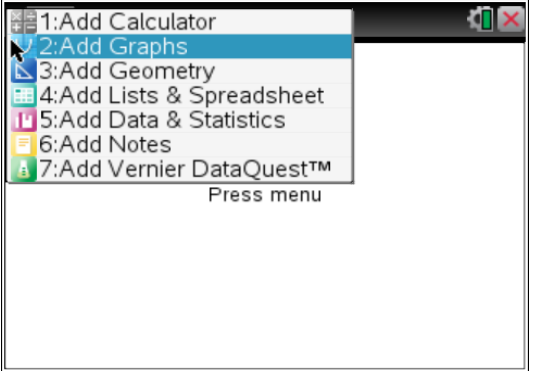
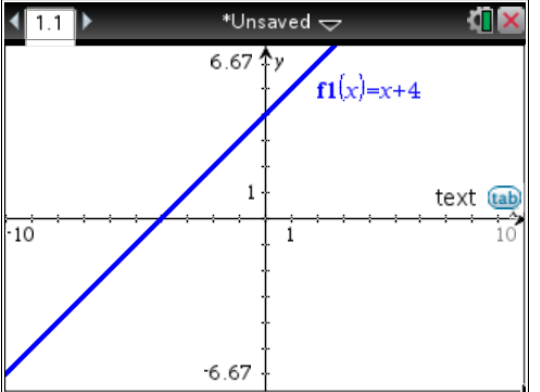
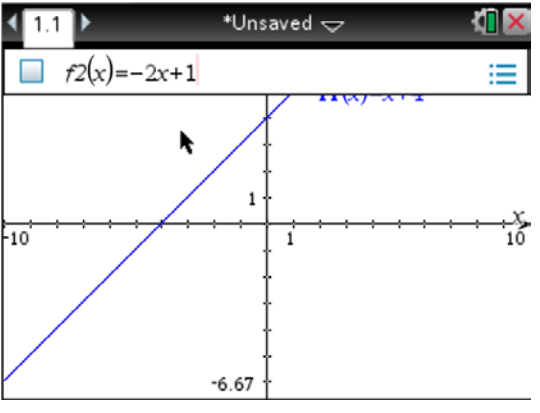


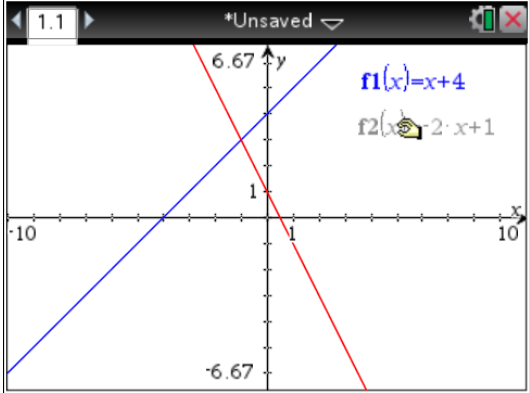
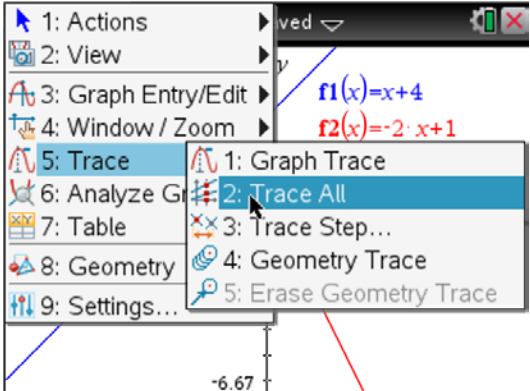
Solving a System of Equations by Graphing

Tutorial Overview

In this tutorial, you will learn how to solve a system of equations by graphing with the TI-Nspire™ CX.

| Actions | Screens |
|--|--|
| Part One: Solving a System of Equations by Graphing | |
| <p>Step 1: Press $\left[\frac{\square}{\text{on}}$, and select 1: New Document to open a new document.</p> <p>Step 2: Choose 2: Add Graphs</p> <p>If the linear equation you want to graph is in $f(x)$ form or $y=$ form, proceed to Step 3.</p> <p>If it is in standard form, skip to Steps 11-13.</p> |  <p>The screenshot shows the TI-Nspire menu with the following options: 1: Add Calculator, 2: Add Graphs (highlighted), 3: Add Geometry, 4: Add Lists & Spreadsheet, 5: Add Data & Statistics, 6: Add Notes, and 7: Add Vernier DataQuest™. Below the menu, it says 'Press menu'.</p> |
| <p>Step 3: The cursor will be in the entry line at the top of the screen to the right of $f1(x)=$.</p> <p>To graph the function $f(x) = x+4$, type $x+4$ on the graph entry line and then press $\left[\text{enter}\right]$.</p> |  <p>The screenshot shows the TI-Nspire graphing screen with a coordinate plane. The x-axis ranges from -10 to 10, and the y-axis ranges from -6.67 to 6.67. A blue line representing the function $f1(x) = x + 4$ is graphed. The text 'f1(x)=x+4' is displayed on the screen.</p> |
| <p>Step 4: To graph the function $f(x) = -2x + 1$, first press $\left[\text{tab}\right]$ to view the entry line. Alternatively, press $\left[\text{ctrl}\right]\left[\text{G}\right]$ to display the entry line.</p> <p>When $f2(x)$ appears on the graph entry line, type $-2x+1$, and then press $\left[\text{enter}\right]$.</p> <p>Note: To graph multiple functions without closing the new entry line, press the down arrow after entering a function rule to scroll through the graph entry lines. After entering the last function rule, press $\left[\text{enter}\right]$.</p> |  <p>The screenshot shows the TI-Nspire graphing screen with a coordinate plane. The x-axis ranges from -10 to 10, and the y-axis ranges from -6.67 to 6.67. Two blue lines are graphed: $f1(x) = x + 4$ and $f2(x) = -2x + 1$. The text 'f2(x)=-2x+1' is displayed in the entry line at the top of the screen.</p> |

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| Actions | Screens |
|--|---|
| <p>Step 5: Grab and drag the label for $f1(x)$ or $f2(x)$ so that they are in the first quadrant.</p> <p>We do this to make sure the function labels are out of the way to prepare for the next step. You may move text or labels anywhere in the viewable area on your screen.</p> |  |
| <p>Step 6: To trace and display function values for multiple graphed functions, press \square, then select 5: Trace, 2: Trace All.</p> <p>To trace on the functions, press the left or right arrow key on the Touchpad.</p> |  |

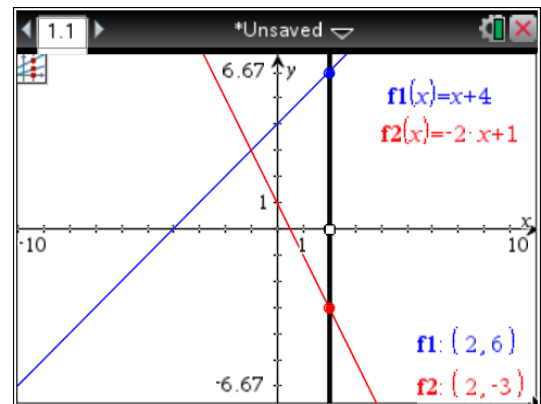
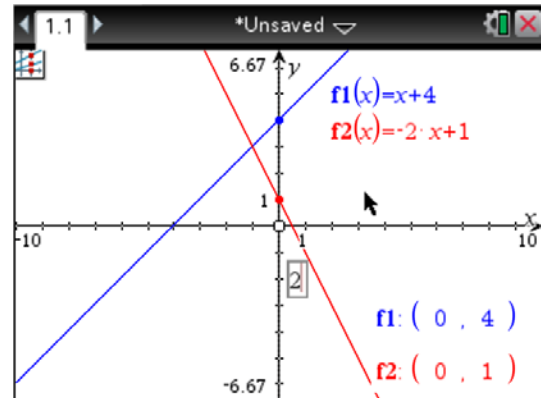
Solving a System of Equations by Graphing

Actions

Step 7: While the Trace tool is active, function values for a particular value of x may be displayed. Type a value for x (the number 2 was chosen for this example) and then press `enter` to display the function values at that value of x .

Note: If a value for x outside of the window settings is entered while tracing, the window will readjust for that particular x -value.

Screens



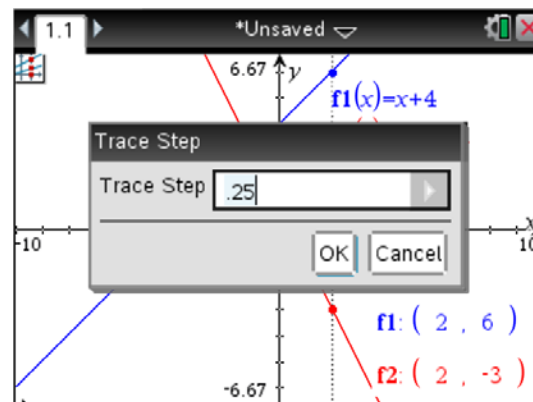
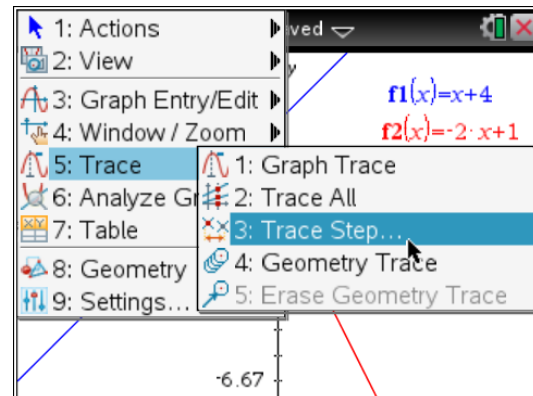
Solving a System of Equations by Graphing

Actions

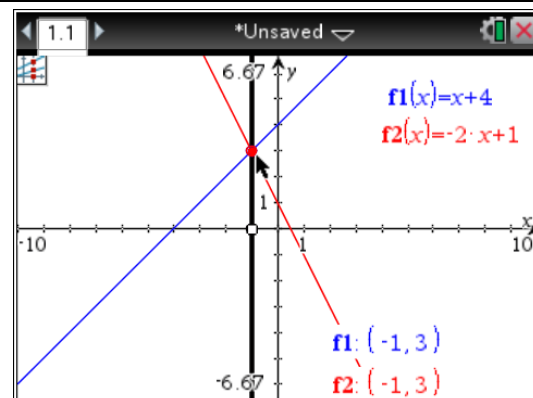
Step 8: To change the trace step size, press \square , then select **5: Trace, 3: Trace Step**.

Press the arrow to the right of the word "Automatic" in the dialog box and select **Enter Value**. Enter a value for **Trace Step** (0.25 for this example) and then press \square .

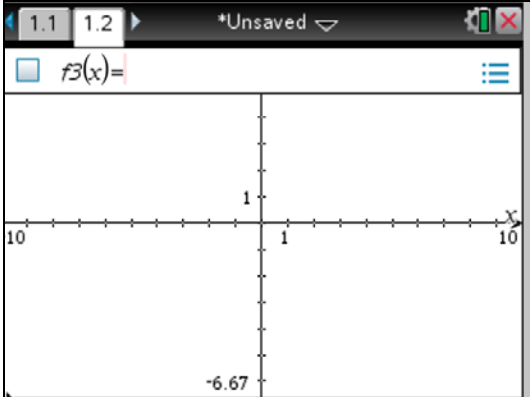
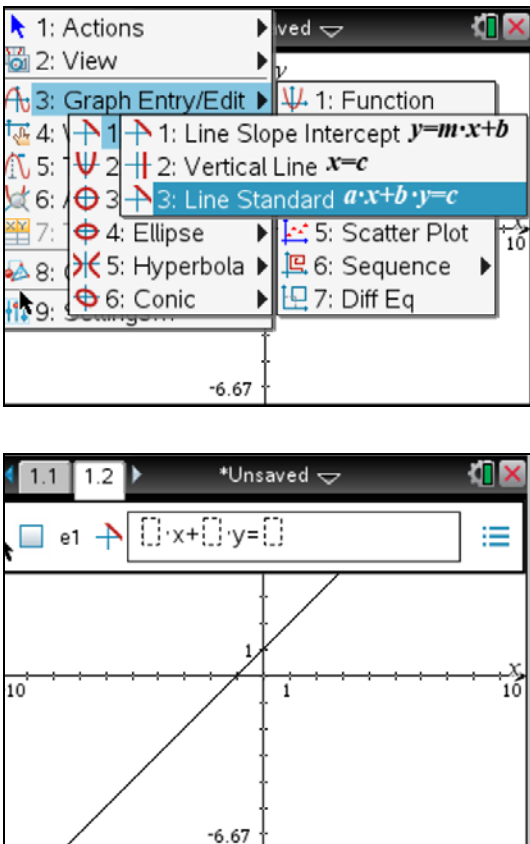
Screens



Step 9: Trace until the point of intersection is located. To exit **Trace** tool, press \square .



Solving a System of Equations by Graphing

| Actions | Screens |
|---|---|
| Part Two: Finding the point of intersection using the Intersection Point(s) Tool. | |
| <p>Step 10: Press ctrl I or ctrl docv to insert a new page in the document. Select 2: Add Graphs.</p> <p>Note that this is page 1.2 – problem 1, page 2.</p> <p>Enter the function $f3(x) = x+1$.</p> <p>Note: The entry line displays $f3(x)=$ since f3 is the next available function in this problem.</p> |  <p>The screenshot shows the TI-Nspire interface with the entry line containing $f3(x)=$. Below the entry line is a coordinate plane with x and y axes ranging from -10 to 10. The origin is labeled with 1. The x-axis has tick marks at 10, 1, and -6.67. The y-axis has tick marks at 1 and -6.67.</p> |
| <p>Step 11: Press menu, then select 3: Graph Entry/Edit, 2: Equation, 1: Line, 3: Line Standard $a \cdot x + b \cdot y = c$. Press enter.</p> <p>The template for a line in standard form will appear in the entry line.</p> |  <p>The top screenshot shows the TI-Nspire menu system. The 'Graph Entry/Edit' menu is open, and the 'Line Standard $a \cdot x + b \cdot y = c$' option is selected. The bottom screenshot shows the TI-Nspire interface with the entry line containing the template $0 \cdot x + 0 \cdot y = 0$. Below the entry line is a coordinate plane with a line graphed, representing the equation $y = -x$.</p> |

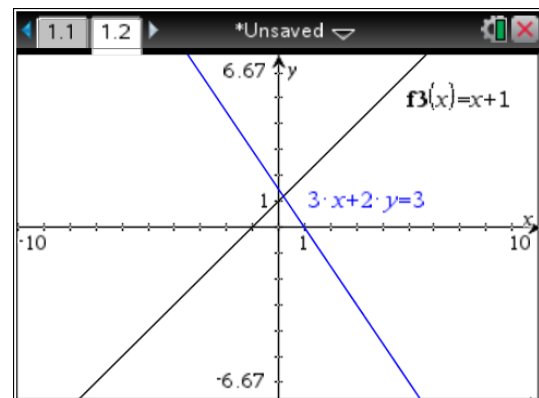
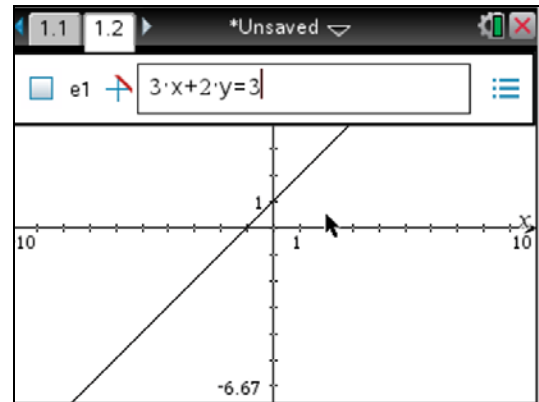
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Actions

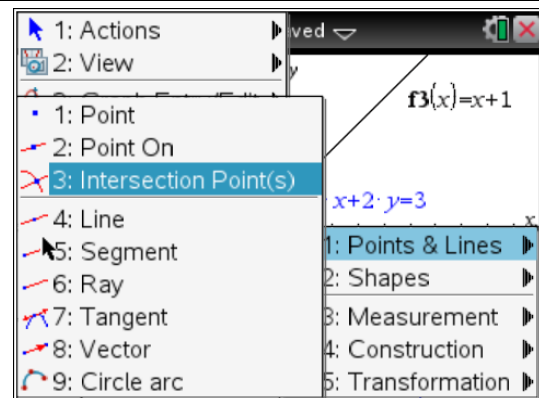
Step 12: Type the equation $3x+2y=3$ into the template and press **enter**.

You may use the **tab** or arrow keys to move between the blank boxes for the values a, b and c in the template. (Be sure to include the negative sign if necessary).

Screens





Step 13: Press **menu**, then select **8: Geometry**, **1: Points & Lines**, **3: Intersection Point(s)**.



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
Actions

Step 14: Using the Touchpad, move the cursor tool, , to the graph of one of the functions, and press the center of the touchpad, or , to select the function.

Repeat Step 14 to select the other function.

The point of intersection and its coordinates will be displayed.

To exit the **Intersection Point(s)** tool, press .

Note: To change the number of digits displayed, you can hover over the x- and/or y-coordinate and press  to reduce the number of digits displayed or  to increase the number of digits displayed.

Screens

