



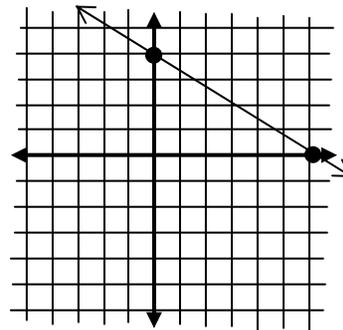
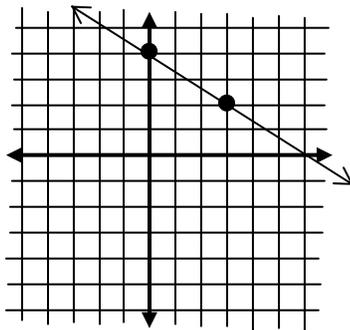
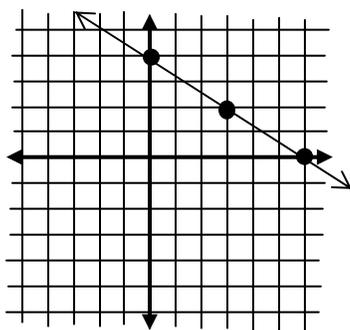
# CASIO eLearning Activities



## Graphing Linear Equations

We have learned to graph linear equations (equations which graph as straight lines) by plotting points from tables of values for the domain and range (coordinate points), by using slope and y-intercept from the slope-intercept form of the equation, and by using x and y intercepts. An example is shown below.

<p>Equation: <math>2x + 3y = 12</math> Table of values:</p> <table border="1"> <thead> <tr> <th><math>x</math></th> <th><math>y</math></th> <th><math>pt.</math></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>(0, 4)</td> </tr> <tr> <td>3</td> <td>2</td> <td>(3, 2)</td> </tr> <tr> <td>6</td> <td>0</td> <td>(6, 0)</td> </tr> </tbody> </table>	$x$	$y$	$pt.$	0	4	(0, 4)	3	2	(3, 2)	6	0	(6, 0)	<p>slope and y-intercept solve for y first</p> $y = \frac{-2}{3}x + 4$ <p>slope = <math>\frac{-2}{3}</math> y-intercept = 4</p>	<p>x and y intercepts set <math>y = 0</math>, find <math>x</math>; <math>x = 6</math> pt. (6, 0) set <math>x = 0</math>, find <math>y</math>: <math>y = 4</math> pt. (0, 4)</p>
$x$	$y$	$pt.$												
0	4	(0, 4)												
3	2	(3, 2)												
6	0	(6, 0)												



Now look at a way to graph using the Casio calculator.

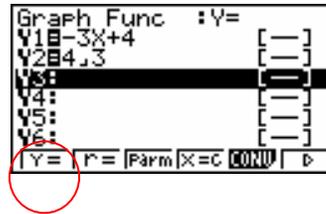
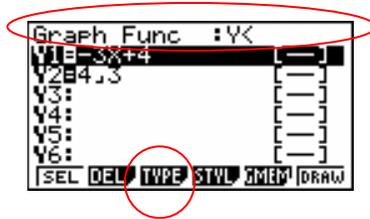
1. In order to enter a linear equation to be graphed into the calculator, you must write it in slope-intercept form.

$$2x + 3y = 12 \text{ must be changed to } y = \frac{-2}{3}x + 4$$

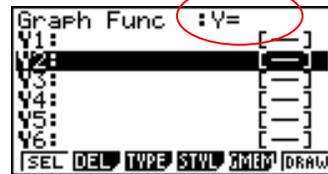
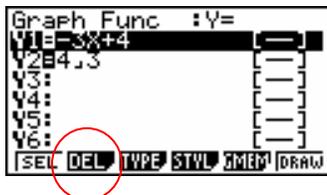
2. On the calculator menu, use the arrows on the blue button to highlight "Graph", and click execute.



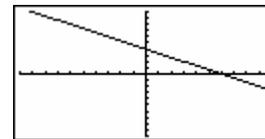
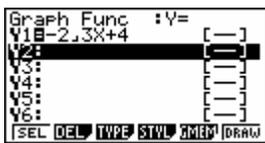
3. The screen that comes up will be ready to accept an equation or inequality. If the top line does not say “Graph Func :Y=”, click on the work “type” at the bottom of the screen and then click on “y = “.



If something is already entered, delete it so you can start fresh. Click on the “del” (delete) on the screen, then click F1 (yes). Highlight each line and repeat the delete process to get a clear screen.

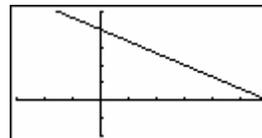
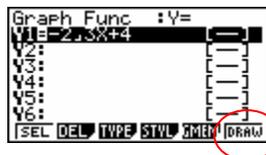


4. Now the line is ready to accept an equation. The “y =” is already there. You put in the rest of the equation. Highlight line 1 “Y1:” and enter the rest of the equation  $-\frac{2}{3}x+4$ . Remember to use the  $\frac{\square}{\square}$  button to enter a fraction and the  $\boxed{X,\theta,T}$  button to enter variables. **Key strokes:**  $\boxed{-}$   $\boxed{2}$   $\boxed{\frac{\square}{\square}}$   $\boxed{3}$   $\boxed{X,\theta,T}$   $\boxed{+}$   $\boxed{4}$   $\boxed{EXE}$   
 This will enter the equation and move to the next line to be ready for another equation.



5. Click on “Draw” at the bottom of the screen. The line is graphed.

6. If you want to see it closer, you can change the size of the graph by clicking on the “view window” button F3. Use the blue button to scroll to highlight the “x minimum” and change it to -3, execute, the “x maximum” to -6, execute, arrow down to get to the “y minimum” and put in -2, execute, and the “y maximum” 5, execute. Execute again.

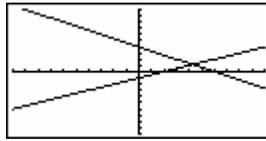
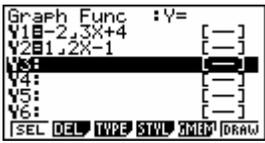


This will take you back to the equation screen. Then click on the draw button again. You will see a larger picture and the number lines are clearer. Compare this to the graphs you did by hand.

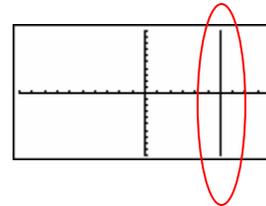
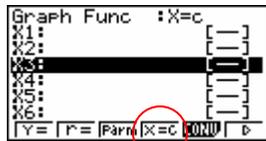
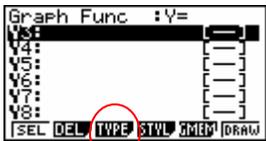
\*\*\* You can change the minimum and maximum values to other numbers by your choice, or you can open the view window once you have graphed (press F3), and then click on “STD” at the bottom center of the screen to get a standard set of numbers which range from minimum of -10 to maximum of 10.



7. Once you have graphed the line and you want to graph another line, click “exit” to return to the equation screen. Highlight and delete the old equation and begin again. If you do not delete the old equation, it will graph along with any new equation you put in.



8. If you want to graph a line with an equation of the form “x =”, you must click on “type” and then click on “x =”. Try “x = 6”. Enter the constant and click execute, then draw. It will be a vertical line.



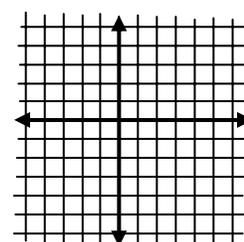
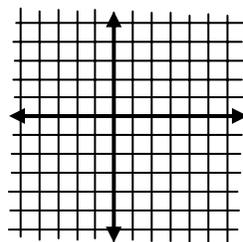
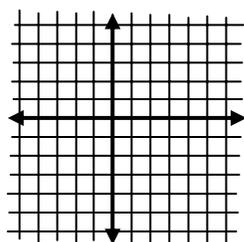
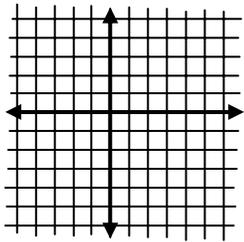
**Practice:** Graph the following equations on the calculator. Sketch a copy of the graph on the grids below for reference when checking the work. Be sure to follow the steps above carefully.

1.  $y = \frac{1}{2}x + 3$

2.  $y = -\frac{3}{4}x + 2$

3.  $2x + 5y = 10$

4.  $x - 3y = 6$

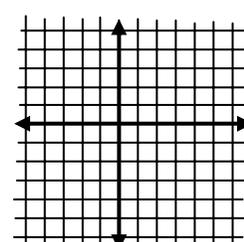
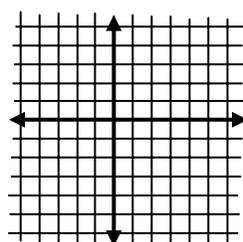
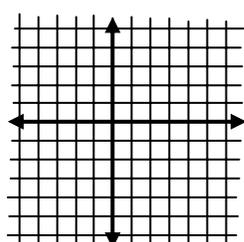
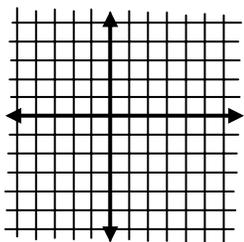


5.  $4x - 2y = 6$

6.  $3x + 2y = 8$

7.  $y = 4$

8.  $x = 2$



9.  $2x = 5y + 10$

10.  $3y = 2x + 9$

11.  $4x - 6 = 2y$

12.  $2x + y = 6$

