

FYI: teacher information



Finding Your Way Around the TI-83+/84+ Graphing Calculator

Algebra 1

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1. Solve the system: $y = -2x + 9$ and $y = 3x - 4$

1. Enter the first equation into Y_1 .
2. Enter the second equation into Y_2 .
3. Hit GRAPH.

4. Use the INTERSECT option to find where the two graphs intersect (the answer).

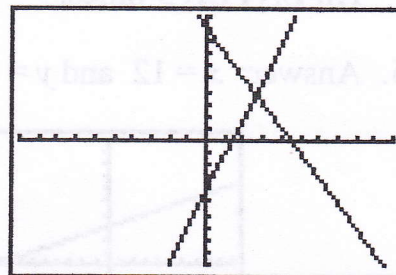
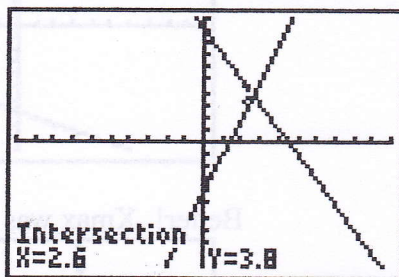
2nd TRACE (CALC) #5 intersect

Move spider close to the intersection.

Hit ENTER 3 times.

```
Plot1 Plot2 Plot3
Y1=-2X+9
Y2=3X-4
Y3=
Y4=
Y5=
Y6=
Y7=
```

5. Answer: $x = 2.6$ and $y = 3.8$



2. Solve the system: $x - 2y = 14$ and $x + 3y = 9$

The graphing calculator will only accept entries that start with $y =$, so we need to solve these equations for $y =$.

$$y = \frac{x}{2} - 7$$

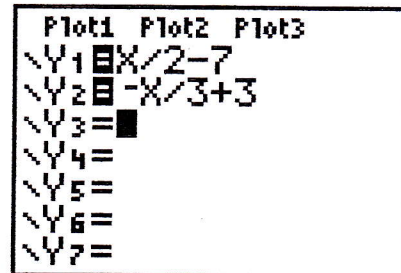
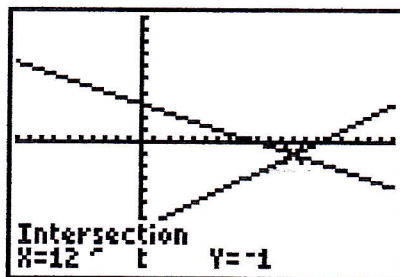
$$y = -\frac{x}{3} + 3$$

1. Enter the first equation into Y_1 .
2. Enter the second equation into Y_2 .
3. Hit **GRAPH**. The graphs appear to intersect OFF the window. We need MORE x -values to the right hand side of the graph. Go to **WINDOW**. Increase the size of **Xmax**. Hit **GRAPH**.

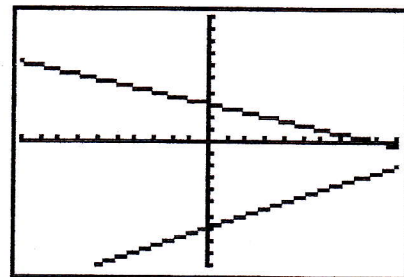
4. Use the **INTERSECT** option to find where the two graphs intersect (the answer).

2nd **TRACE** (**CALC**) #5 **intersect**
 Move spider close to the intersection.
 Hit **ENTER** 3 times.

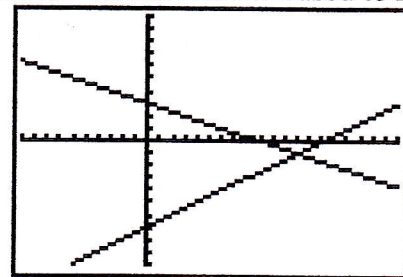
5. Answer: $x = 12$ and $y = -1$

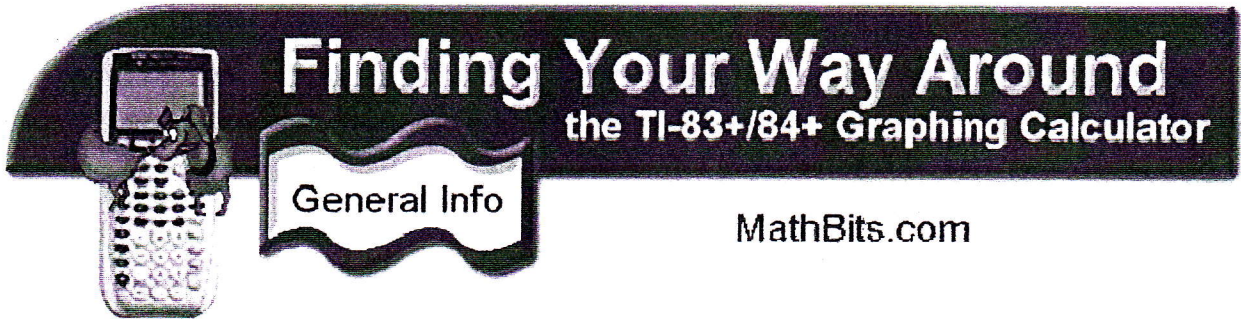


Oops!! They don't cross in the window.



Better! X_{max} was increased to 20.



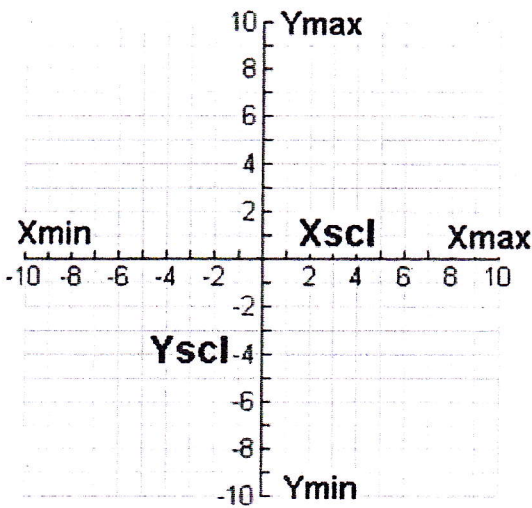


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General Info

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Zoom Settings



The size of the coordinate plane is defined by Xmin, Xmax, Ymin, and Ymax, as seen at the left.

- Xmin must be less than Xmax
- Ymin must be less than Ymax
- Xscl and Yscl define the distance between tick marks on the x-axis and y-axis
- To turn off tick marks, let Xscl = 0 and Yscl = 0
- 3/2 aspect ratio in window

```

WINDOW
Xmin=-10
Xmax=10
Xscl=1
Ymin=-10
Ymax=10
Yscl=1
Xres=1
    
```

Xres sets pixel resolution 1 to 8. The default is 1. At Xres = 1, functions are evaluated and graphed at each pixel on the x-axis. At Xres = 8, at every eighth pixel along the x-axis.

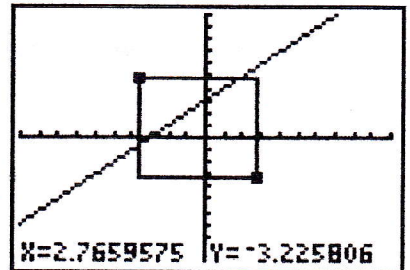
Zoom - Zoom - Zoom



```

ZOOM MEMORY
1:ZBox
2:Zoom In
3:Zoom Out
4:ZDecimal
5:ZSquare
6:ZStandard
7↓ZTrig
    
```

#1 ZBox - draws a box to define the new smaller viewing window. Move cursor to upper left corner of where your box will be placed. Hit **ENTER** to anchor that corner. Move cursor to lower right corner of the desired box, press **ENTER**. The box will fill the screen.



#2 Zoom In - magnifies the part of the graph surrounding the cursor location. Move cursor to the location you wish to magnify and hit **ENTER**. To magnify a second time, hit **ENTER** again. You can move the cursor between zooms and continue magnifying. To return to previous graph, choose **#3 Zoom Out** and press **ENTER**. To quickly return to the 10 x 10 screen, press **#6 Zstandard**.

#4 ZDecimal - plots the function with values $X_{\min} = -4.7$, $X_{\max} = 4.7$, $Y_{\min} = -3.1$, $Y_{\max} = 3.1$. The ΔX and ΔY are 0.1. In plain English, you have a smaller screen which *traces nicely* in increments of one decimal place.

#5 ZSquare - $\Delta X = \Delta Y$. The aspect ratio is adjusted so that circles will look like circles. The domain in the window is -15 to 15 and the range is -10 to 10.

#6 Zstandard - 10 x 10 window. This window is usually large enough to show a representative portion of a graph. Remember, however, that the graph is slightly distorted because the x and y units are not equal.

#7 Ztrig - window appropriate for trig graphs. In Radian Mode, the domain is -2π to 2π , the range is -4 to 4, and $X_{\text{scl}} = \frac{\pi}{2}$. In Degree Mode, the domain is -352.5° to 352.5° , the range is -4 to 4, and $X_{\text{scl}} = 90^\circ$.

#8 ZInteger - $\Delta X = \Delta Y = 1$. $X_{\text{scl}}, Y_{\text{scl}} = 10$. Each pixel represents one unit along the horizontal and vertical axes. Move cursor to desired center, **ENTER**.

#9 ZStat - redefines window to appropriate size for statistical plotting. Automatically adjusts the window to show all data points in the active plot in **STATPLOT**.

#10 ZFit - recalculates Y_{\min} and Y_{\max} using current x-values to show best graph. The range is adjusted so that the function will enter the window at a corner on the left side. If the function is odd, it will leave the window at the other corner of the diagonal. If the function is even, the range will cover the extreme y-value in the other direction of the entry point.

