

**Unit 9:
Lesson 05****Graphing calculator solutions of linear systems****Finding the intersection point of two lines:**

Using the **Y=** button, enter the two linear equations as Y1 and Y2. Press the **Graph** button to display the two lines simultaneously.

If the intersection point of the lines is not visible, use the **Zoom** button and then zoom **In** or **Out**. The **ZStandard** zoom will often be the most useful. If none of these show the intersection point, make an estimate of where it is and use the **Window** button to adjust the max and min values accordingly.

With the intersection point displayed, access **2nd Calc | 5.intersect**. You will then be asked to identify the “first curve.” Move the blinker with the left and right arrows until it is clearly on one of the lines. Press Enter. You will then be asked to similarly identify the “2nd curve.” Finally, you are asked to “guess” the intersection. Move the blinker until it is very close to the intersection point and press Enter. The x and y values of the intersection point will be given at the bottom of the display.

See **Calculator Appendix C** and a related video for more details on finding the intersection point of two lines.

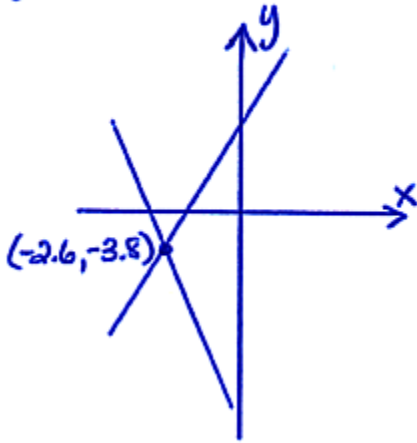
Using the techniques described above, find the intersection point of the following systems of linear equations. Make a rough sketch of the calculator display.

Example 1:

$$y = 3x + 4 \quad \text{and} \quad y = -2x - 9$$

$$y_1 = 3x + 4$$

$$y_2 = -2x - 9$$

**Example 2:**

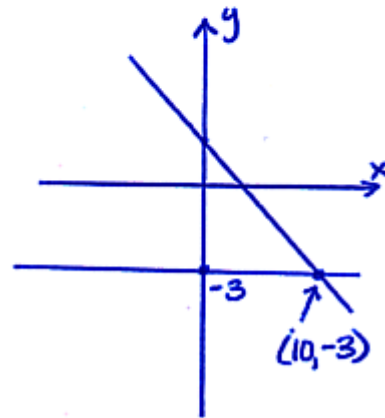
$$y = -3 \quad \text{and} \quad 2y - 4 + x = 0$$

$$2y = -x + 4$$

$$y = -\frac{1}{2}x + 2$$

$$y_1 = -3$$

$$y_2 = -\frac{1}{2}x + 2$$



Assignment:

Using a graphing calculator, find the intersection point of the following systems of linear equations. Make a rough sketch of the calculator display.

1. $x + 4 = y$ and $y = 3x - 8$

2. $2x - 3y = -1$ and $8x - 12y = -4$

3. $y = 4.1x + 2$ and $2y = 4.1x + 2$

4. $y = -6x + 110$ and $y = x + 55$

5. $\left(\frac{3}{5}\right)x - y = 1$ and $y = x$

6. $y = x + 99$ and $y - x = -3$

7. $.1x + .2 = .3y$ and $y = x + 1$

8. $1002y = -5x - 55$ and $y = 4x - 17$