Name: _____ Date: _____

MA 162

Week 3 Recitation Worksheet (Thursday)

You must show all work to receive full credit.

1. Solve the given system of equations using the substitution method.

$$\begin{cases} 4x - 7y = -71 \\ -3x + y = 32 \end{cases}$$

2. Solve the given system of equations using the elimination method.

$$\begin{cases} x + 2y = -26 \\ 6x - 5y = -3 \end{cases}$$

3. Solve the given system of equations using either the substitution method or the elimination method.

$$\begin{cases} 2x + 5y = -14 \\ 6x - 7y = \quad 46 \end{cases}$$

4. Solve the given system of equations using either the substitution method or the elimination method.

$$\begin{cases} x - \dfrac{2}{3}y = -16 \\ \dfrac{5}{4}x + \dfrac{1}{6}y = -5 \end{cases}$$

5. Solve the given system of equations using either the substitution method or the elimination method. If the system has no solution, state *no solution*. If there are infinitely many solutions, *parameterize the set of solutions*.

$$\begin{cases} -4x - 8y = 11 \\ 3x + 6y = -8 \end{cases}$$

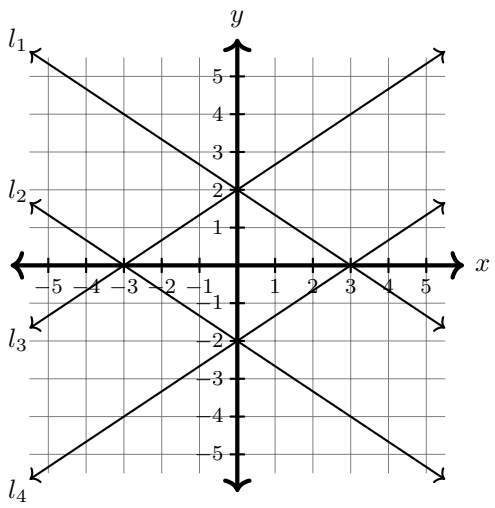
6. Solve the given system of equations using either the substitution method or the elimination method. If the system has no solution, state *no solution*. If there are infinitely many solutions, *parameterize the set of solutions*.

$$\begin{cases} -4x - 8y = 11 \\ 3x + 6y = -\dfrac{33}{4} \end{cases}$$

7. Determine all values of h and k for which the given system has infinitely many solutions.

$$\begin{cases} -5x - 3y = h \\ -2x + ky = 9 \end{cases}$$

8. We have now seen two methods for solving a system of linear equations: (1) the substitution method and (2) the elimination method. The systems that we have considered so far generally involve two equations and two variables. Imagine you are asked to solve a system of *four equations* with two variables. Not sure how to solve such a system, you decide to graph each of the lines corresponding to the four equations. Below is the resulting graph (lines are labeled l_1, l_2, l_3, and l_4).



How many solutions does the system of equations have? **Explain your reasoning.**