

Today's Plan:

Learning Target (standard): I will solve systems of equations using the substitution and elimination methods.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

Substitution & Elimination

1) *independent* $(-2, -4)$

2) *independent* $(-2, 8)$

3) *inconsistent* no solution

4) *independent* $(-1, -5)$

5) *independent* $(0, 0)$

6) *independent* $(-3, 0)$

7) *independent* $(-5, 8)$

8) *dependent* infinite solutions

Solve using the graphing method.

$$\textcircled{1} \quad 2x + y = -3 \quad y = -2x - 3$$

$$\textcircled{2} \quad 3x - 2y = -8 \quad m = -2$$

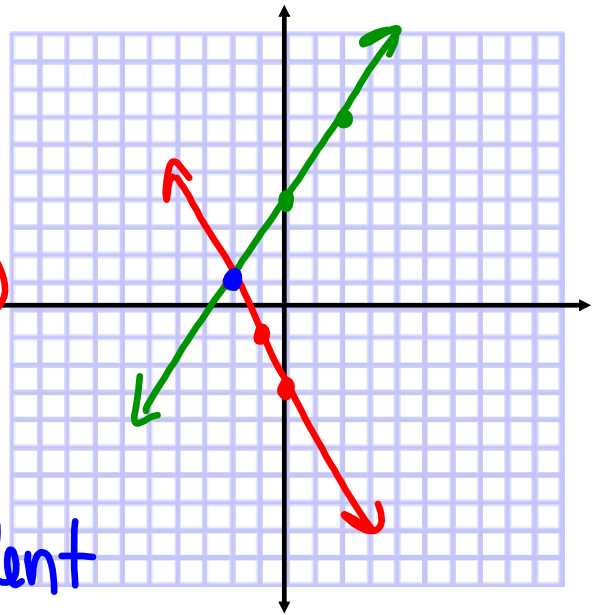
$$-2y = -3x - 8 \quad Iy: (0, -3)$$

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

$$m = \frac{3}{2}$$

$$Iy: (0, 4)$$

independent
 $(-2, 1)$



Solve using the elimination method.

$$8x - 2y = 20$$

$$5x + 2y = -7$$

$$\hline 13x = 13$$

$$\textcircled{x = 1}$$

independent
 $(1, -6)$

$$8 - 2y = 20$$

$$-2y = 12$$

$$y = -6$$

Solve using the graphing method.

$$\textcircled{1} \quad x - 3y = -9 \quad -3y = -x - 9$$

$$\textcircled{2} \quad 2x - y = 2 \quad y = \frac{1}{3}x + 3$$

$$-y = -2x + 2$$

$$y = 2x - 2$$

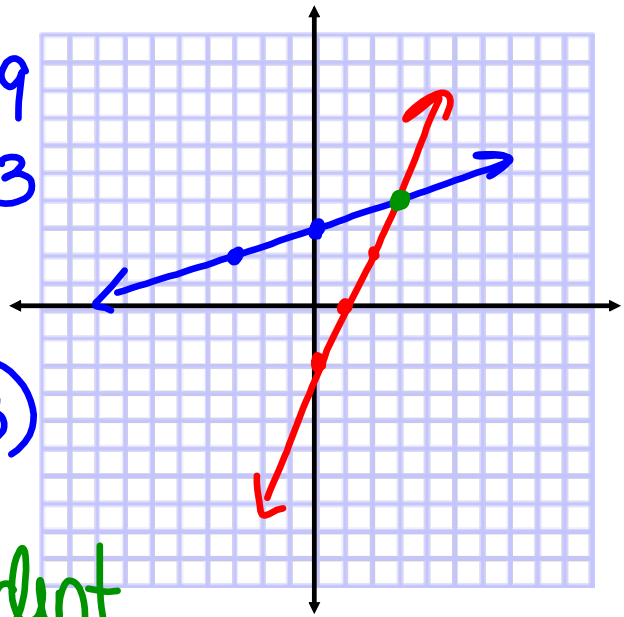
$$m = 2$$

$$I_y: (0, -2)$$

$$m = \frac{1}{3}$$

$$I_y: (0, 3)$$

independent
(3, 4)



Solve the system using elimination.

$$\begin{array}{r} x + y + z = 4 \\ 2x - y + z = -1 \\ 2x + y + z = 3 \end{array} \begin{array}{l} > + \\ > \\ > \end{array} \begin{array}{l} 3x + 2z = 3 \\ (4x + 2z = 2) - 1 \end{array}$$

$$\begin{array}{r} 3x + 2z = 3 \\ -4x - 2z = -2 \\ \hline -x = 1 \end{array}$$

$$x = -1$$

independent
(-1, 2, 3)

$$-3 + 2z = 3$$

$$2z = 6$$

$$z = 3$$

$$-2 + y + 3 = 3$$

$$y + 1 = 3$$

$$y = 2$$

Solve using the elimination method.

$$\begin{array}{r} (2x - y + 3z = 9) \cdot 4 \\ x + 4y + 4z = 5 \\ (3x + 2y + 2z = 5) \cdot -2 \end{array} \quad \begin{array}{r} 8x - 4y + 12z = 36 \\ x + 4y + 4z = 5 \\ -6x - 4y - 4z = -10 \end{array} \begin{array}{l} > + \\ > + \end{array}$$

$$\begin{array}{r} 9x + 16z = 41 \\ -5x = -5 \\ \boxed{x = 1} \end{array} \quad \begin{array}{r} 9 + 16z = 41 \\ 16z = 32 \\ \boxed{z = 2} \end{array}$$

$$1 + 4y + 8 = 5$$

$$4y + 9 = 5$$

$$4y = -4$$

$$\boxed{y = -1}$$

independent
(1, -1, 2)

Solve each system using the substitution method:

$$\begin{array}{r} 4x + y = 9 \\ 3x - 4y = 2 \end{array} \quad \boxed{y = -4x + 9}$$

$$3x - 4(-4x + 9) = 2$$

$$3x + 16x - 36 = 2$$

$$19x = 38$$

$$x = 2$$

independent
(2, 1)

$$y = -8 + 9$$

$$y = 1$$

Solve using the elimination method.

$$\begin{aligned} (-3x - 4y - 4z = -28) \cdot 2 \\ -6x - y - 6z = -11 \\ (-2x - 5y + z = -12) \cdot 3 \end{aligned}$$

$$\begin{aligned} 6x + 8y + 8z = 56 \\ -6x - y - 6z = -11 > + \\ 6x + 15y - 3z = 36 > + \end{aligned}$$

$$-2(7y + 2z = 45)$$

$$14y - 9z = 25$$

$$14y - 45 = 25$$

$$14y = 70$$

$$y = 5$$

independent
(-4, 5, 5)

$$-14y - 4z = -90$$

$$14y - 9z = 25$$

$$-13z = -65$$

$$z = 5$$

$$-2x - 25 + 5 = -12$$

$$-2x - 20 = -12$$

$$-2x = 8$$

$$x = -4$$

Solve using the elimination method.

$$\begin{aligned} (x - 5y - 2z = 26) \cdot 6 \\ -6x + y + 3z = 9 \\ (2x + 3y + z = -21) \cdot 3 \end{aligned}$$

$$\begin{aligned} 6x - 30y - 12z = 156 \\ -6x + y + 3z = 9 > + \\ 6x + 9y + 3z = -63 > + \end{aligned}$$

$$(-29y - 9z = 165) \cdot 2$$

$$(10y + 6z = -54) \cdot 3$$

$$-60 + 6z = -54$$

$$6z = 6$$

$$z = 1$$

independent
(-2, -6, 1)

$$-58y - 18z = 330$$

$$30y + 18z = -162$$

$$-28y = 168$$

$$y = -6$$

$$2x - 18 + 1 = -21$$

$$2x - 17 = -21$$

$$2x = -4$$

$$x = -2$$

Assignment:

Elimination Method 3x3
#1-6