

5

$$y = -\frac{1}{4}x - 3$$

$$y = -\frac{5}{2}x + 7$$

1. $y = -\frac{1}{4}x - 3$

2. $y = -\frac{5}{2}x + 7$

$$-\frac{1}{4}x - 3 = -\frac{5}{2}x + 7$$

3. $4(-\frac{1}{4}x) + 4(-3) = 4(-\frac{5}{2}x) + 4(7)$
 $-1x - 12 = -10x + 28$

$$-1x + 10x = 28 + 12$$

$$9x = 40$$

$$\frac{9x}{9} = \frac{40}{9}$$

$$x = \frac{40}{9}$$

4. $y = -\frac{1}{4}x - 3$

$$y = -\frac{1}{4}\left(\frac{40}{9}\right) - 3$$

$$y = -\frac{10}{9} - 3$$

$$y = -\frac{37}{9}$$

$$\left(\frac{40}{9}, -\frac{37}{9}\right)$$

$$y + \frac{1}{4}x = -3$$

$$y + \frac{5}{2}x = 7$$

$$\begin{bmatrix} 1 & \frac{1}{4} & -3 \\ 1 & \frac{5}{2} & 7 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & -\frac{37}{9} \\ 0 & 1 & \frac{40}{9} \end{bmatrix} \begin{matrix} y \\ x \end{matrix}$$

6

$$5x + 4y = -13$$

$$2x - 4y = 6$$

1. LINE UP LIKE TERMS/ NUMBERS

2. IF NECESSARY, MULTIPLY THE EQUATION(S) BY A NUMBER TO ENSURE ONE OF THE VARIABLES WILL BE ELIMINATED

3. ADD THE EQUATIONS

$$5x + 4y = -13$$

$$2x - 4y = 6$$

$$7x = -7$$

4. SOLVE

$$7x = -7$$

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

$$x = -1$$

5. NOW PLUG THIS VALUE INTO ONE OF THE EQUATIONS AND SOLVE

$$2x - 4y = 6$$

$$2(-1) - 4y = 6$$

$$-2 - 4y = 6$$

$$-4y = 6 + 2$$

$$-4y = 8$$

$$\frac{-4y}{-4} = \frac{8}{-4}$$

$$y = -2$$

$$(-1, -2)$$

CALC

$$\begin{bmatrix} 5 & 4 & -13 \\ 2 & -4 & 6 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & -12 \\ 0 & 1 & -2 \end{bmatrix} \begin{matrix} x \\ y \end{matrix}$$

7

$$-3x - 2y = -8$$

$$5x + y = 18$$

$$-3x - 2y = -8$$

$$10x + 2y = 36$$

$$7x = 28$$

$$\frac{7x}{7} = \frac{28}{7}$$

$$x = 4$$

$$5x + y = 18$$

$$5(4) + y = 18$$

$$20 + y = 18$$

$$y = 18 - 20$$

$$y = -2$$

$$(4, -2)$$

$$\begin{bmatrix} -3 & -2 & -8 \\ 5 & 1 & 18 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 4 \\ 0 & 1 & -2 \end{bmatrix} \begin{matrix} x \\ y \end{matrix}$$