

Solve the following
System of Equations.



$$\begin{array}{r} 3x - y = 14 \quad \textcircled{1} \\ \underline{-x + 3y = 14 \quad \textcircled{2}} \end{array}$$

$$\begin{array}{r} \textcircled{2} \times 3 \\ -3x + 9y = 42 \quad \textcircled{3} \\ \underline{3x - 1y = 14 \quad \textcircled{1}} \end{array}$$

$$\begin{array}{r} \textcircled{3} + \textcircled{1} \\ \underline{8y = 56} \end{array}$$

$$y = 7$$

$$\begin{array}{r} \text{Sub in } \textcircled{1} \\ 3x - 7 = 14 + 7 \\ \underline{3x = 21} \end{array}$$

$$x = 7$$

Point of Intersection (7, 7)



$$\cancel{-7x + 6y = -26} \quad \textcircled{1}$$

$$14x + 10y = 8 \quad \textcircled{2}$$

$$\textcircled{1} \times 2 \quad -14x + 12y = -52 \quad \textcircled{3}$$
$$14x + 10y = 8 \quad \textcircled{2}$$

$\textcircled{3} + \textcircled{2}$

$$\frac{22y}{22} = \frac{-44}{22}$$

$$y = -2$$

Sub in $\textcircled{2}$

$$14x + 10(-2) = 8$$

$$14x - 20 = 8 + 20$$

$$\frac{14x}{14} = \frac{28}{14}$$

$$x = 2$$

Point of Intersection $(2, -2)$

$$-10x + 10y = -20 \quad \textcircled{1}$$

$$5x - 4y = 1 \quad \textcircled{2}$$

$$\textcircled{2} \times 2 \quad 10x - 8y = 2 \quad \textcircled{3}$$

$$-10x + 10y = -20 \quad \textcircled{1}$$

$\textcircled{3} + \textcircled{1}$

$$2y = -18$$

$$y = -9$$

Sub in $\textcircled{1}$

$$-10x + 10(-9) = -20$$

$$-10x - 90 = -20 + 90$$

$$\frac{-10x}{-10} = \frac{70}{-10}$$

$$x = -7$$

Point of Intersection $(-7, -9)$



$$-5x + 3y = -15 \quad \textcircled{1}$$

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

$$\textcircled{1} \times 3 \quad -15x + 9y = -45 \quad \textcircled{3}$$

$$\textcircled{2} \times 5 \quad +15x + 20y = +45 \quad \textcircled{4}$$

$$\textcircled{3} - \textcircled{4}$$

$$\begin{aligned} -11y &= 0 \\ -11y &= 0 \\ -11 &= -11 \end{aligned}$$

$$y = 0$$

Sub in $\textcircled{1}$ $-5x + 3(0) = -15$

$$\begin{aligned} -5x &= -15 \\ \frac{-5x}{-5} &= \frac{-15}{-5} \end{aligned}$$

$$x = 3$$

Point of Intersection (3, 0)

