

Substitution Steps

1) choose a given equation to get a variable by itself; use inverse operations

$$\begin{array}{l} \text{given equations: } 2x - 3y = -2 \\ 4x + y = 24 \end{array}$$

$$\begin{array}{r} 4x + y = 24 \\ -4x \quad -4x \\ \hline y = -4x + 24 \end{array}$$

2) plug expression from #1 into other given equation use ()

$$\begin{array}{l} 2x - 3y = -2 \\ 2x - 3(-4x + 24) = -2 \end{array}$$

Distribute •

$$\begin{array}{l} 2x + 12x - 72 = -2 \\ 14x - 72 = -2 \\ + 72 \quad + 72 \\ \hline 14x = 70 \\ 14 \quad 14 \\ \hline x = 5 \end{array}$$

Combine like terms

4) take number answer from step #3 & plug it into a given equation; use inverse operations to solve

$$\begin{array}{l} 2x - 3y = -2 \\ 2(5) - 3y = -2 \\ 10 - 3y = -2 \\ -10 \quad -10 \\ \hline -3y = -12 \\ -3 \quad -3 \\ \hline y = 4 \end{array}$$

5) write answer as an ordered pair (x, y)

$$x = 5 \text{ and } y = 4 \text{ so } \dots (5, 4)$$

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