**: Substitution Method Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

What does it mean to substitute? Let’s look and see! ☺

Given: y = 2x – 3

 x = 4

y = 2(4) – 3 What did we do??? REPLACED (or substituted) 4 in for x!

y = 8 – 3

y = 5

We now know x and y! The answer is (4, 5) – a point!!!!

**Steps for solving systems of equations by the Substitution Method:**

* STEP 1: **SOLVE** one of the equations for one of its variables. (When possible, solve for a variable that has a coefficient of 1 or -1)
* STEP 2: **SUBSTITUTE** expression from step 1 into the OTHER equation and solve for the variable.
* STEP 3: **SUBSTITUTE** the value from step 2 into revised equation from step 1 and solve.
* STEP 4: **ANSWER** – write your answer as a POINT of intersection, if possible, otherwise write no solution or infinite solutions.

Let’s use these steps and try to solve these systems by the substitution method! Check off as you complete each step!

|  |  |  |
| --- | --- | --- |
| 1. $\begin{matrix}y=3x+2\\x+2y=11\end{matrix}$
* Step 1: SOLVE
* Step 2: SUBSTITUTE
* Step 3: SUBSTITUTE
* Step 4:ANSWER
 | 1. $\begin{matrix}x=y+3\\2x-y=5\end{matrix}$
* Step 1: SOLVE
* Step 2: SUBSTITUTE
* Step 3: SUBSTITUTE
* Step 4:ANSWER
 | 1. $\begin{matrix}15x-3y=12\\y=5x-4\end{matrix}$
* Step 1: SOLVE
* Step 2: SUBSTITUTE
* Step 3: SUBSTITUTE
* Step 4:ANSWER
 |

YOU TRY!

1. $\begin{matrix}x=16-4y\\3x+4y=8\end{matrix}$

Let’s try some more together! ☺

|  |  |  |
| --- | --- | --- |
| 1. $\begin{matrix}x=2y -6\\4x+6y=4\end{matrix}$
* Step 1: SOLVE
* Step 2: SUBSTITUTE
* Step 3: SUBSTITUTE
* Step 4:ANSWER
 | 1. $\begin{matrix}x=y+3\\3x+6y= -18\end{matrix}$
* Step 1: SOLVE
* Step 2: SUBSTITUTE
* Step 3: SUBSTITUTE
* Step 4:ANSWER
 | 1. $\begin{matrix}y=4x+4\\8x-2y= -2\end{matrix}$
* Step 1: SOLVE
* Step 2: SUBSTITUTE
* Step 3: SUBSTITUTE
* Step 4:ANSWER
 |

You try!

1. $\begin{matrix}y=-5x -12\\3x-5y=4 \end{matrix}$ 9. $\begin{matrix}y= -2x+3\\y=2x-7 \end{matrix}$ 10. $\begin{matrix}x=5-y\\7x-9y=3\end{matrix}$