What you will learn about: Solving Systems of Linear Equations by Substitution

Solving System of Equations by Substitution

Solve a system of equations by substitution.

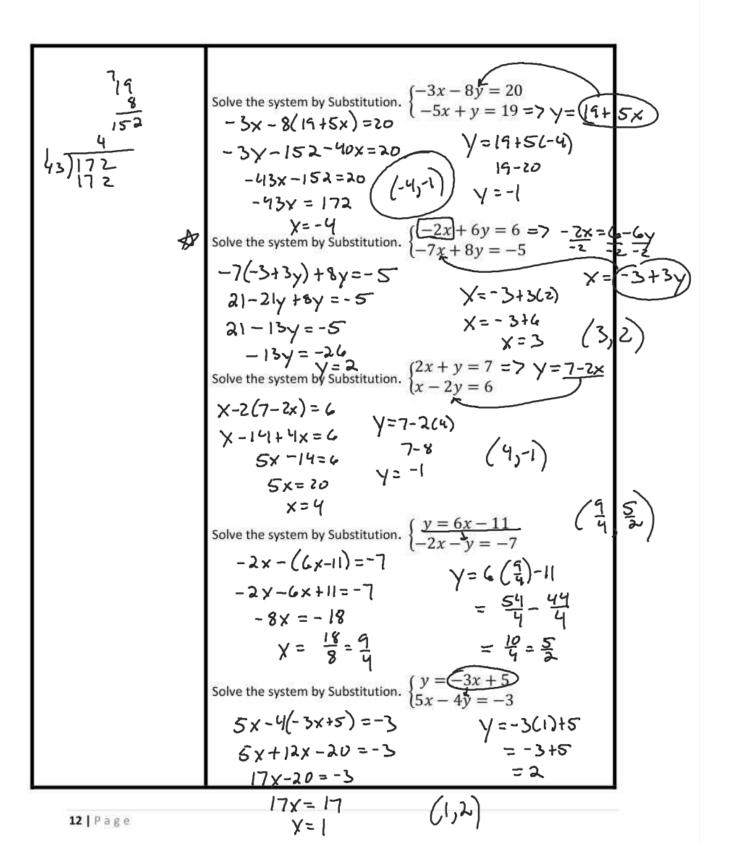
- Step 1. Solve one of the equations for either variable.
- Step 2. Substitute the expression from Step 1 into the other equation.
- Step 3. Solve the resulting equation.
- Step 4. Substitute the solution in Step 3 into one of the original equations to find the other variable.
- Step 5. Write the solution as an ordered pair.

X = 0

Step 6. Check that the ordered pair is a solution to both original equations.

Solve the system by Substitution.
$$\begin{cases} 2x + y = 7 \\ x - 2y = 6 \end{cases}$$
Solve for x in bottom equation
$$x-2y=6$$

$$x = (4+2y)$$



Solve the system by Substitution.
$$\begin{cases} y = -2 \\ 4x - 3y = 18 \end{cases}$$

$$4x - 3(-2) = 18$$

$$4x + 6 = 18 \qquad (3, -2)$$

$$4x = 12$$

$$x = 3$$

Solve the system by Substitution.
$$\begin{cases} 2x + y = 7 \\ x - 2y = 6 \end{cases} = \begin{cases} 2 + 2y = 7 \\ x - 2y = 6 \end{cases}$$

$$\begin{cases} 2x + y = 7 \\ x - 2y = 6 \end{cases} = \begin{cases} 2x + 2y = 7 \\ x = 6 + 2y = 7 \end{cases}$$

$$\begin{cases} 12 + 4y + y = 7 \\ 12 + 5y = 7 \\ 5y = -5 \end{cases}$$

$$\begin{cases} 4y - 2x + 1 \end{cases}$$

Solve the system by Substitution.
$$\begin{cases} y = 2x + 1 \\ y = -3x - 6 \end{cases}$$

Solve the system by Substitution.
$$\begin{cases} y = -2x + 5 \\ y = \frac{1}{2}x \end{cases}$$