

objective: To solve linear systems by substitution and elimination methods

1/17/19

1.) The Substitution Method: steps

- Isolate one of the variables ($y =$ or $x =$)
- Substitute the expression from step (a) into the same variable in the other equation.
- Solve for the only variable you have left.
- Substitute the variable you solved for in step (c) into one of the original equations.
- solve for the other variable
- write answer as an ordered pair (x, y)

Example:

$$\begin{aligned} y &= 2x - 1 \\ 3x + 2y &= 26 \\ 3x + 2(2x - 1) &= 26 \\ 3x + 4x - 2 &= 26 \end{aligned}$$

$$\begin{array}{r|l} 7x - 2 & = 26 \\ +2 & +2 \\ \hline 7x & = 28 \\ \cancel{7} & \cancel{7} \end{array}$$

$$\begin{aligned} \boxed{x=4} & \rightarrow \\ y &= 2(4) - 1 \\ y &= 8 - 1 \\ \boxed{y=7} & \\ \boxed{(4, 7)} & \end{aligned}$$

2.) Elimination or Combination Method : steps

- a.) Line up x 's and y 's on one side of the equations.
- b.) The variable(s) that you choose to eliminate must have the same coefficients with opposite signs. To do this you might have to multiply 1 or both equations by a constant.
- c.) Add or combine the equations to eliminate one of the two variables.
- d.) solve for the remaining variable.
- e.) Substitute the variable that you solved for into any of the two original equations to solve for the other variable.
- f.) write the answer as an ordered pair. (x, y)

