3.2: Solving Linear Systems by Substitution

ADP Content Standards:

- ***E1.d:*** Recognize and solve problems that can be represented by single variable linear equations or inequalities or systems of linear equations or inequalities involving two or more variables. Interpret the solution(s) in terms of the context of the problem.

CCSS for High School Mathematics:

- ***A.REI.6: Solve systems of equations***
  Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

Objective:

- To solve a system of linear equations in two variables by substitution.

Solving a Linear System by Substitution

Step	Procedure
1	***Solve*** one equation for one of its variables.
2	***Substitute*** the expression from **Step 1** into the other equation and solve for the other variable.
3	***Substitute*** the value from the **Step 2** into the revised equation from **Step 1** and solve.
4	***Check*** the solution in each of the original equations.

Example 1: Use Substitution

Solve the system using substitution.

a.) $y = 4x$

$-2x + y = -4$

b.) $y = 2x$

$4x - y = 6$

c.) $3x + 2y = 1$

$-2x + y = 4$

d.) $3x + 2y = 7$

$x - 2y = -3$

e.) $5x + 3y = 7$

$-2x + y = 6$