Name:_____**Date:**_____**Period:**___

3-2 Solving Systems Algebraically Part 1: Substitution

Standards

A2.A.REI.C.4 Write and solve a system of linear equations in context.

A2.A.REI.D.6 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are solutions of the equation $f(x) = g(x)$, find the appropriate solutions using technology.

Key Concepts

_____– means to plug in or replace a variable with an expression.

Steps for Solving Systems using Substitution:

1.

2.

3.

4.

5.

6.

Examples

1. (I do) Solve the system by substitution. $\begin{cases} y = x \\ y = -x + 2 \end{cases}$

2. (We do) Solve the system by substitution. $\begin{cases} x + 3y = 5 \\ -2x + 4y = 0 \end{cases}$

3. (They do) Solve the system by substitution. $\begin{cases} r + s = -12 \\ 4r - 6s = 12 \end{cases}$

4. Adrian can choose between two tennis courts at two different community centers to learn how to play tennis. One center charges $25 per hour. The other center charges $25 per hour in addition to a one-time registration fee of $10.

   a. Write a system of equations to represent the cost c for h hours of court use at each campus.

   b. Solve the system of equations. What does the solution represent in the context of this problem?

   c. If Adrian plans to practice for a total of 10 hours, which community center should he choose? Explain

You do: Practice 3-2: Complete your assignment on a separate sheet of paper. Show work!

Solve by substitution

1. $\begin{cases} 4x + 2y = 7 \\ y = 5x \end{cases}$

2. $\begin{cases} x + 12y = 68 \\ x = 8y - 12 \end{cases}$

3. $\begin{cases} -2x + y = -1 \\ 3x - y = -1 \end{cases}$

2. A student took 60 minutes to answer a combination of 20 multiple choice and extended response questions. She took 2 minutes to answer each multiple choice question and 6 minutes to answer each extended response question. How many of each type of question was on the test? Write and solve a system of equations using substitution.