6.2 Examples – Day 2 – Solve each system of equations using the substitution method

1. $x = (-3y + 4)$

$6y + 2x = 8$

$6y + 2(-3y+4) = 8$

$6y - 6y + 8 = 8$

$8 = 8$

Infinitely Many Solutions

2. $y = (4x - 9)$

$y - 4x = 6$

$4x - 9 - 4x = 6$

$-9 = 6$

No Solution

3. $-3x + y = 1$

$y = (3x - 5)$

$-3x + 3x - 5 = 1$

$-5 = 1$

No Solution

4. $2x - 4y = 10$

$+4y \quad +4y$

$-12x + 24y = -60$

$\frac{2x}{2} = \frac{4y}{2} + \frac{10}{2}$

$x = (2y + 5)$

$-12(2y+5) + 24y = -60$

$-24y - 60 + 24y = -60$

$-60 = -60$

Infinitely Many Solutions

True or False, if false, explain.

True or False When solving a system using substitution, if you obtain an identity, then the system has no solution. If you obtain an identity then there are infinitely many solutions.

True or False You cannot use substitution to solve a system that does not have a variable with a coefficient of 1 or – 1. You can use substitution to solve any type of system of equations.

When is the substitution method a better method than graphing for solving a system of linear equations? When the equations are not written in slope-intercept form but rather something like standard.

Solve the following system of equations using two methods.

Graphing:

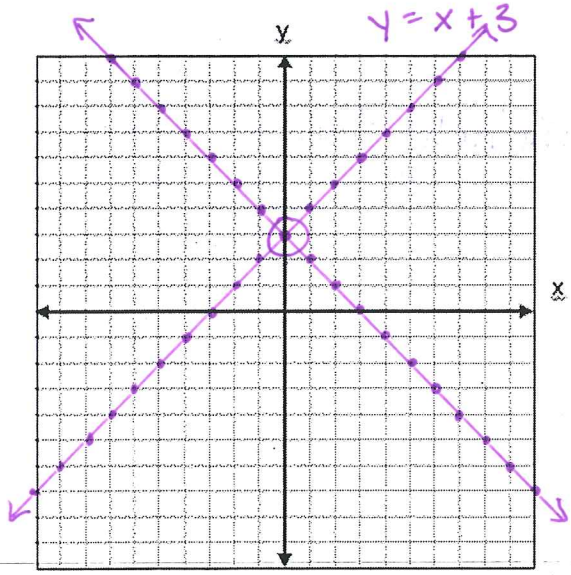
$x + y = 3$ $\quad -x \quad -x$

$x - y = -3$ $\quad -x \quad -x$

$y = -x + 3$

$\frac{-y}{-1} = \frac{-x}{-1} - \frac{3}{-1}$

$y = x + 3$



Solution: (0,3)

Substitution:

$x + y = 3$

$x - y = -3$ $\quad +y \quad +y$

$x = y - 3$

$x = 3 - 3$

$x = 0$

$y - 3 + y = 3$

$2y - 3 = 3$

$+3 \quad +3$

$\frac{2y}{2} = \frac{6}{2}$

$y = 3$

(0,3)

same