Name _____

Solving a System of Equations by Substitution

Date _____ Period _____

System of Equations

A system of equations is a group of equations with the same variables.

$3 + 2 = 5$	$x + y = 5$	$2a + b = 3$	$2(2) + -1 = 3$
$3 - 5(2) = -7$	$x - 5y = -7$	$3a - 2b = 8$	$3(2) - 2(-1) = 8$
✓	$(3,2)$	$a = 2; b = -1$	✓

The solution to a system of equations is the ordered pair (x,y) that satisfies both equations

We can solve a system of equations by using the method of substitution.

Three outcomes when solving a system by substitution

$x = 2$ $y = -3$	$3 = 3$	$5 \neq 19$
	True Statement	False Statement
One Solution	Infinitely Many Solutions	No Solutions

Solve the system of equations by substitution

$y = -x + 2$ $y = x - 4$

Solve the system of equations by substitution

$y = -x + 5$ $y = 2x - 1$

Solve the system of equations by substitution

$y = 6x - 4$ $y = -2x + 28$

Solve the system of equations by substitution

$y = x - 2$ $4x + 4y = 8$

Solve the system of equations by substitution

$y = 3x + 1$ $\quad$ $2x + 3y = 36$

Solve the system of equations by substitution

$y = -3x + 1$ $\quad$ $6x + 2y = 14$

Solve the system of equations by substitution

$y = -x + 2$ $\quad$ $2x + 2y = 4$

Three outcomes when solving a system by substitution

$x = 2$ $y = -3$	$3 = 3$	$5 \neq 19$
	True Statement	False Statement
One Solution	Infinitely Many Solutions	No Solutions