

Solving Linear Systems by Substitution

Now we will look at the substitution method:

1. take one equation and isolate a variable
2. substitute that expression into the other equation and solve
3. substitute the answer into first equation, then solve for the remaining variable

$(-2, -3)$

EXAMPLE 1- Solve the following system of linear equations.

$2x = y - 1$

AND

$-3 + y = 3x$

$y - 1 = 2x + 1$

$-3 + (2x + 1) = 3x$
 $-3 + 2x + 1 = 3x - 2x$

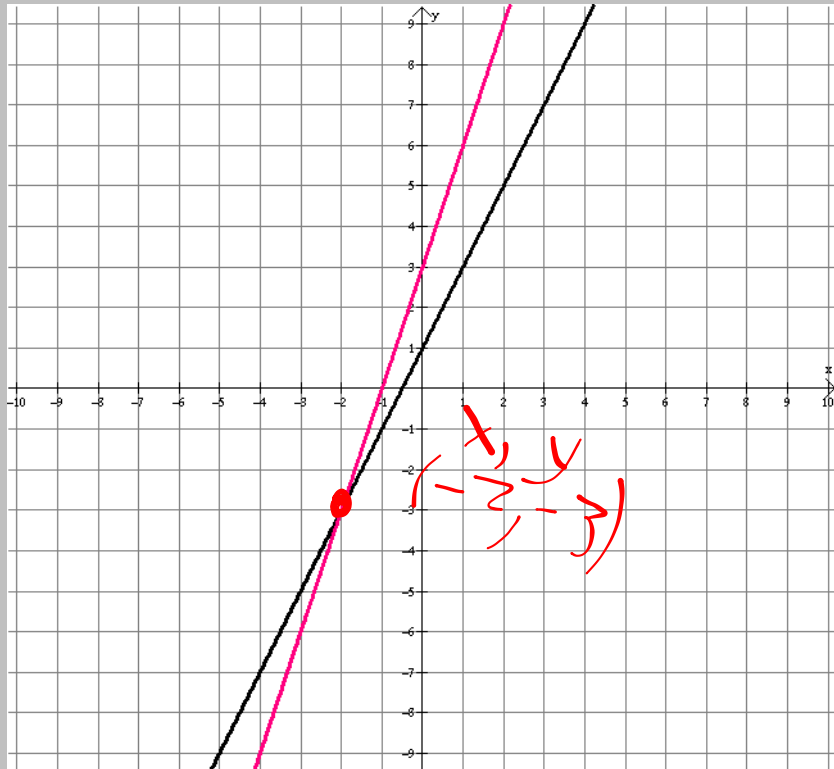
STEP 1:

$y = 2x + 1$
 $y = 2(-2) + 1$
 $y = -4 + 1$
 $y = -3$

$-2 = x$

Apr 11-9:53 AM

If we graph our 2 equations, we can check our answer....



May 9-9:47 PM

Practice Question: Solve the system of equations by substitution method

$x - 2y = -6$ AND $3x - y = 2$

$x = 2y - 6$

$x = 2(4) - 6$

$x = 2$

$(2, 4)$

Check

$x - 2y = -6$
 $(2) - 2(4) = -6$
 $2 - 8 = -6$
 $-6 = -6$ ✓

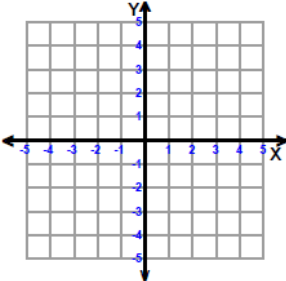
$3x - y = 2$
 $3(2) - (4) = 2$
 $6 - 4 = 2$
 $2 = 2$ ✓

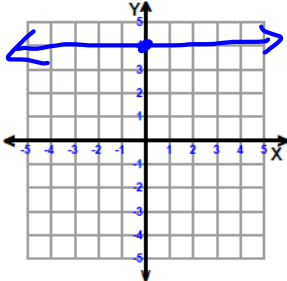
$3(2y - 6) - y = 2$
 $6y - 18 - y = 2$
 $5y - 18 = 2$
 $5y = 20$
 $y = 4$

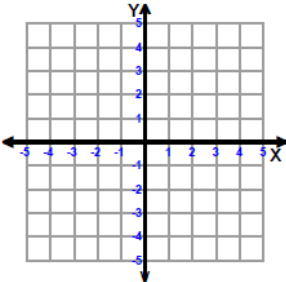
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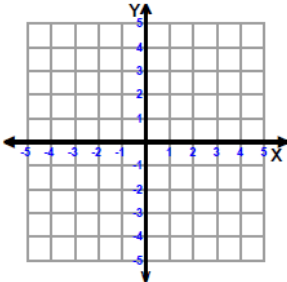
Complete the worksheet:
 Handout #1: "Solve each system by graphing"

Solve each system by graphing.

1)  $-5x + 4y = -16$
 $x + 4y = 8$

2)  $y = 2x - 4$
 $y = 4$

3)  $-2x + y = 2$
 $y = 4$

4)  $y = -3x - 3$
 $y = -3$

Sep 5-7:35 AM

Complete the worksheet:
Handout #2: "Solve each system by substitution"

Name : _____ Score : _____
Teacher : _____ Date : _____

Solving Systems of Equations by Substitution

1) $9x + 8y = 6$ $(-2, 3)$ 6) $y = \frac{3}{2}x + 3$
 $-7x = 14$ $y = -3$

2) $6x + 4y = 6$ 7) $-x - 7y = 9$
 $3x = -15$ $-x + 9y = -23$

3) $3x + 2y = -13$ 8) $3x + y = -21$
 $3x + 4y = 1$ $x + y = -5$

7) $-x - 7y = 9$
 $-x + 9y = -23$

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