DO NOW

Solve the following system of equations by graphing. Check your solution

$x - y = 1$
$y - 2x = -3$

$x - y = 1$
$-x \quad -x$
$-y = -x + 1$
$\dfrac{-y}{-1} = \dfrac{-x}{-1} + \dfrac{1}{-1}$
$y = x - 1$
$m = \dfrac{1}{1}$
$b = -1$

$y - 2x = -3$
$+2x +2x$
$y = 2x - 3$
$m = \dfrac{2}{1}$
$b = -3$

$x - y = 1$
$2 - 1 = 1$
$1 = 1$ ✓

$x + y = 1$

Solution
$(2, 1)$

$y - 2x = -3$
$1 - 2(2) = -3$
$1 - 4 = -3$
$-3 = -3$ ✓
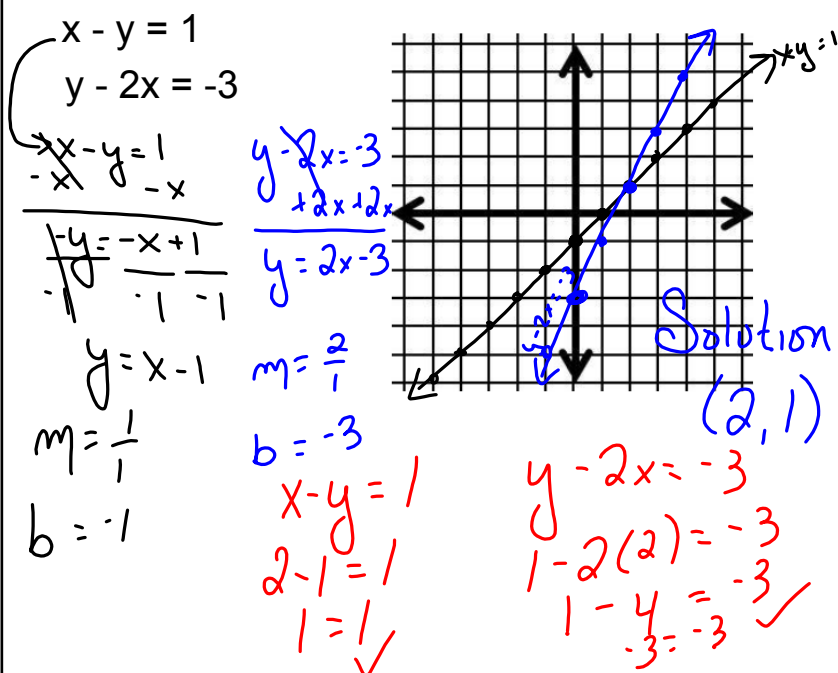
Nov 12-9:14 AM

Homework Answers

1. $y = x + 5$
   $y = \dfrac{-3}{2}x - 5$
   (-4, 1)

2. $y = \dfrac{-1}{2}x$
   $y = \dfrac{4}{3}x + 5$
   (6, -3)

3. No

4. No

5. No

6. Yes

Nov 28-1:19 PM

1

Systems of Equations - Substitution Method

- **Isolate** one of the variables in one of the equations (get the x or y variable alone)

- **Substitute** the expression into the second equation.

- **Solve** the equation and substitute back in to find the second variable.

- **Check** the solutions in **both** of the **original** equations.

Nov 12-9:23 AM

EX 1: Solve the following system of equations algebraically and check.

$y = \boxed{2x - 1}$
$y = -x + 2$

$2x - 1 = -x + 2$
$\underline{+x \qquad +x}$
$3x - 1 = 2$
$\underline{+1 \qquad +1}$
$\dfrac{3x}{3} = \dfrac{3}{3}$
$x = 1$

$y = 2x - 1$
$y = 2(1) - 1$
$y = 2 - 1$
$y = 1$

Solution

$(1, 1)$

check

$y = 2x - 1$
$1 = 2(1) - 1$
$1 = 2 - 1$
$1 = 1 \checkmark$

$y = -x + 2$
$1 = -(1) + 2$
$1 = 1 \checkmark$

Nov 12-9:20 AM

2

EX 2: $y - 2x = -3$
$x = \boxed{y - 1}$

$x = y - 1$
$x = 5 - 1$
$x = 4$

$y - 2x = -3$

$y - 2(y - 1) = -3$

$y - 2y + 2 = -3$

$\qquad \quad -2 \quad -2$
_____

$y - 2y = -5$

$\dfrac{-1y}{-1} = \dfrac{-5}{-1}$

$y = 5$

Solution

$(4, 5)$

$y - 2x = -3 \qquad x = y - 1$

$5 - 2(4) = -3 \qquad 4 = 5 - 1$

$5 - 8 = -3 \qquad 4 = 4$

$-3 = -3$ ✓   ✓

Jan 13-11:44 AM

EX 3: $x - y = 7 \longrightarrow x - y = 7$
$\qquad\qquad\qquad\qquad -x \qquad -x$
_____

$x + 3y = 3$

$\dfrac{-y}{-1} = \dfrac{-x + 7}{-1} \quad \dfrac{}{-1}$

$X + 3(x - 7) = 3$

$y = \boxed{x - 7}$

Nov 13-11:10 AM

3