Warm Up

Decide if the following points are a solution to the equation.

$3x - 2y = 12$
$-x + 5y = 7$

$(0, -2)$
x y

$3(0) - 2(-2) = 12$
$4 \neq 12$

No, (0, -2) is Not a Soln.

$(2, 1)$
x y

$3(2) - 2(1) = 12$
$6 - 2 = 12$
$4 \neq 12$

No, (2, 1) is Not a Soln

Homework Questions?

7.1 Solving Linear Systems by Graphing Continued

Goals: • Solve a system of linear equations by graphing.

EQ: What are the steps to solve by graphing?

Example 1: Using the Graph-and-Check Method

Solve the linear system graphically. Check the solution algebraically. $y=mx+b$

$5x + 4y = -12$ **Equation 1**

$3x - 4y = -20$ **Equation 2**

$-3x \quad -3x$

$-4y = -3x - 20$

$\frac{-4y}{-4} = \frac{-3x}{-4} - \frac{20}{-4}$

$y = \frac{3}{4}x + 5$

$m = 3/4 \quad b = 5$

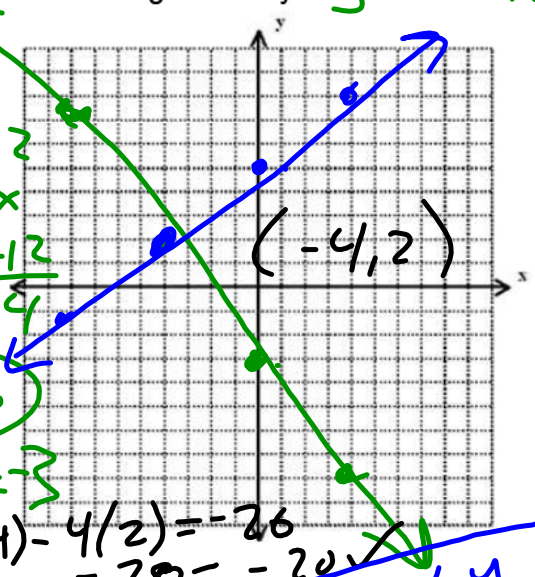
$5x+4y=-12$

$-5x \quad -5x$

$\frac{4y}{4} = \frac{-5x-12}{4}$

$y = \frac{-5}{4}x - 3$

$m = -5/4 \quad b = -3$



$(-4,2)$ $5(-4)+4(2)=-12$

$-12=-12$ ✓

$3(-4)-4(2)=-20$

$-20=-20$ ✓

∴ yes, $(-4,2)$ is soln.

Try It Graph and check to solve the linear system.

1) $3x - 4y = 4$ → $3x-4y=4$

$x + 2y = 8$

$-3x \quad -3x$

$-4y = -3x + 4$

$\frac{-4y}{-4} = \frac{-3x}{-4} + \frac{4}{-4}$

$y = \frac{3}{4}x - 1$

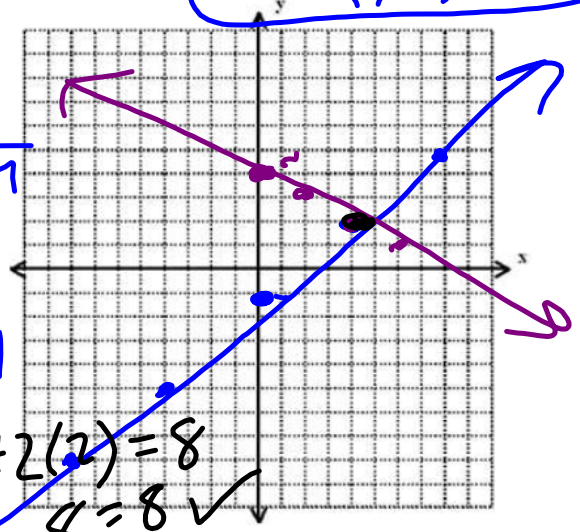
$m = 3/4 \quad b = -1$

$-x \quad -x$

$\frac{2y}{2} = \frac{-x+8}{2}$

$y = \frac{-1}{2}x + 4$

$m = -1/2 \quad b = 4$



$4+2(2)=8$

$8=8$ ✓

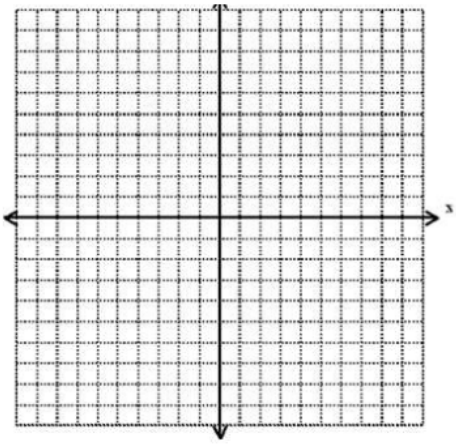
$(4,2)$ $3(4)-4(2)=4$

$4=4$ ✓

∴ yes, $(4,2)$ is soln.

2) $5x + 2y = 4$

$9x + 2y = 12$



3) $y = -2x - 3$

$2x + 5y = 25$

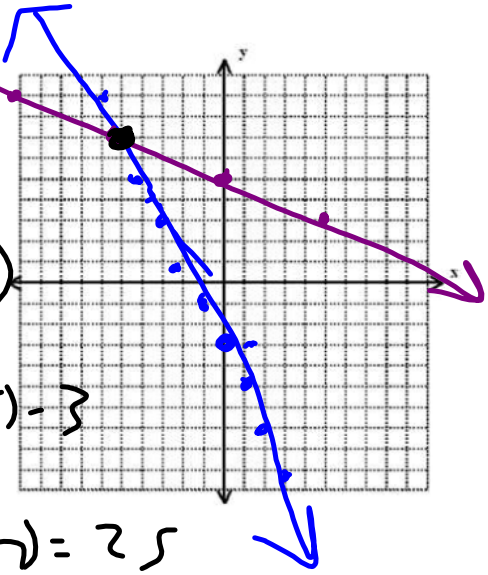
$m = -2 \quad b = -3$

$-2x \quad -2x$

$\frac{5y}{5} = \frac{-2x + 25}{5}$

$y = -\frac{2}{5}x + 5$

$m = -\frac{2}{5} \quad b = 5$



$(-5, 7)$

$x \quad y$

$7 = -2(-5) - 3$

$7 = 7 \checkmark$

$2(-5) + 5(7) = 25$

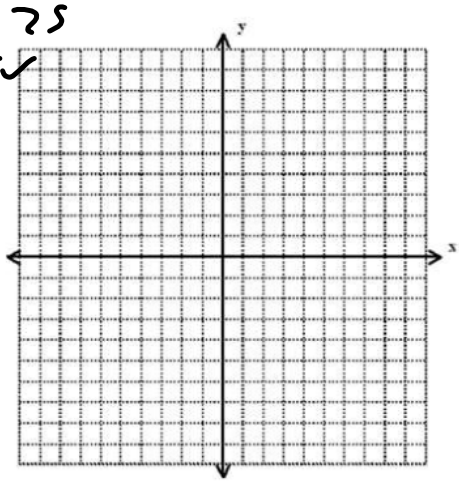
$-10 + 35 = 25$

$25 = 25 \checkmark$

4) $y = 3x + 4$

$7x - 3y = -6$

∴ yes, $(-5, 7)$ is soln.



1) $y = mx + b$

$x = \#$ ↕
$y = \#$ ↔

2) Graph $m =$ $b =$

3) pt of intersection (x, y)

4) ✓ pt in Both of the Original Eqns

Solving Systems of Graphing wkst

#1-10