Day 5 Study Guide Homework

Solving Systems Graphically or by using Elimination or Substitution

Key ☺

Name:_____

Solve by Graphing:

1) $\begin{cases} y = -x - 6 \\ y = x - 4 \end{cases}$

$m = -1 \quad b = -6$

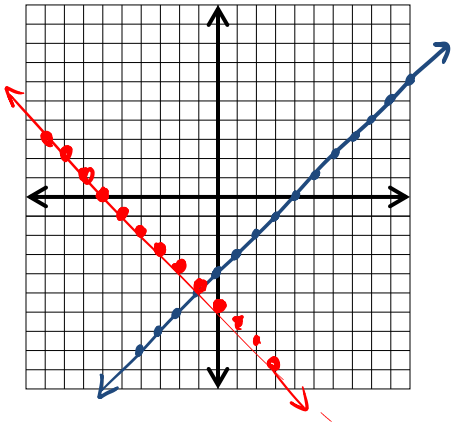
$m = 1 \quad b = -4$

$(-1, -5)$

$\checkmark \; -1 = -(-5) - 6 \quad -5 = -1 - 4$

$-1 = 5 - 6 \quad -5 = -5 \checkmark$

$-1 = -1 \checkmark$



2) $\begin{cases} 2x + y = 4 \\ y = 5x - 3 \end{cases}$ $\rightarrow y = -2x + 4$

$m = 5$
$b = -3$

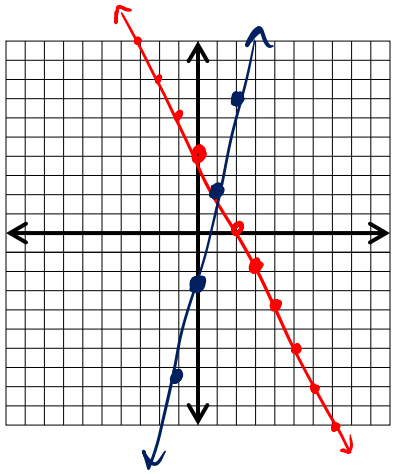
$m = -2$
$b = 4$

$(1, 2)$

$\checkmark \; 2(1) + 2 = 4 \quad 2 = 5(1) - 3$

$2 + 2 = 4 \quad 2 = 2 \checkmark$

$4 = 4 \checkmark$



Solve each system by substitution.

3) $\begin{cases} 2x - y = -2 \\ y = -5x - 12 \end{cases}$

$2x - (-5x - 12) = -2$

$2x + 5x + 12 = -2$

$7x + 12 = -2$

$-12 \quad -12$

$\frac{7x}{7} = \frac{-14}{7}$

$x = -2$

$y = -5(-2) - 12$

$y = 10 - 12$

$y = -2$

$(-2, -2)$

4) $\begin{cases} 3x - 2y = 11 \\ -3x = 6y - 27 \end{cases}$

$-3 \quad -3 \quad -3$

$x = -2y + 9$

$3(-2y + 9) - 2y = 11$

$-6y + 27 - 2y = 11$

$-8y + 27 = 11$

$-8y = -16$

$y = 2$

$3x - 2(2) = 11$

$3x - 4 = 11$

$3x = 15$

$x = 5$

$(5, 2)$

Solve each System by Elimination

5) $\begin{cases} 3x-4y=0 \\ 3x-2y=6 \end{cases}$

$(4,3)$

$3x-4y=0$
$-3x+2y=-6$
$-2y=-6$
$-2 \quad -2$
$y=3$

$3x-4(3)=0$
$3x-12=0$
$+12 \quad +12$
$3x=12$
$3 \quad 3$
$x=4$

6) $\begin{cases} -.4x+.9y=-1.8 \\ 24x-9y=18 \end{cases}$ (10)

$\Rightarrow -4x+9y=-18$

$20x=0$
$x=0$

$24(0)-9y=18$
$0-9y=18$
$-9y=18$
$y=-2$

$(0,-2)$

Solve the following systems using either elimination OR substitution:

7) $\begin{cases} 3x+5y=6 \\ -4x+2y=5 \end{cases}$ $\quad 4 \Rightarrow 12x+20y=24$ $\quad 3 \Rightarrow -12x+6y=15$

$26y=39$
$y=3/2$

$-4x+2(3/2)=5$
$-4x+3=5$
$-4x=2$
$x=-1/2$

$\left(-\frac{1}{2}, \frac{3}{2}\right)$

8) $\begin{cases} -16x+2y=-2 \\ y=8x-1 \end{cases}$

$-16x+2(8x-1)=-2$
$-16x+16x-2=-2$
$-2=-2$

infinitely many solutions

9) $\begin{cases} x=9y+6 \\ 2y-3x=7 \end{cases}$ $\quad 6 \Rightarrow -18x+6y=24$
$18x-6y=-12$

$2y-3(9y+6)=7$
$2y-27y-18$
$-25y-18=7$
$-25y=25$
$y=-1$

$(-3,-1)$

$x=9(-1)+6$
$x=-3$

10) $\begin{cases} -18x+6y=24 \\ 3x-y=-2 \end{cases}$ $\quad 6$

$+18x-6y=-12$

$0 \neq 12$

no solution

11) Is the following point (-1, 12) a solution to the system? $\begin{cases} y=-2x+10 \\ -3x+y=9 \end{cases}$

$12=-2(-1)+10$
$12=2+10$
$12=12$ ✱

$-3(-1)+12=9$
$3+12=9$
No! $15 \neq 9$

NO!
(solution to first... not to 2nd)