6.2 Notes

Monday, January 26, 2015

6.2 Notes Name: key

Solving Systems of linear equations using linear combinations

you can use this method if...

1) Everything is "lined up"
2) At least one of the variable pairs must be opposites

① Add the 2 equations
② solve
③ plug it in
④ get solution

$$\begin{cases} -3x + 2y = 12 \\ 3x - 4y = 8 \end{cases}$$

$-2y = 20$

$y = -10$

$-3x + 2(-10) = 12$

$-3x - 20 = 12$

$+20 \quad +20$

$-3x = 32$

$x = -10.\overline{6}$

$(-10.\overline{6}, -10)$

2. $\begin{cases} 2x + 4y = -12 \\ 3x + 2y = 3 \end{cases}$ $\cdot -2$ Distribute

$2x + 4y = -12$

$-6x - 4y = -6$ combine equations

$-4x = -18$ solve

$x = 4.5$

plug into one equation

$3(4.5) + 2y = 3$

$13.5 + 2y = 3$

$-13.5 \quad -13.5$ find solution

$2y = -10.5$

$y = -5.25$

$(4.5, -5.25)$

3. $\begin{cases} 5x - 3y = -2 \\ 7x + 4y = 8 \end{cases}$ $\cdot 4$, $\cdot 3$ ($-12y$, $+12y$)

$20x - 12y = -8$

$21x + 12y = 24$

$41x = 16$

$x = 0.39$

* Now that the y's are opposites, when I combine the two equations, the y's will cancel each other out and I will be able to solve for x

$5x - 3y = -2$

$5(0.39) - 3y = -2$

$1.95 - 3y = -2$

$-1.95 \quad -1.95$

$-3y = -3.95$

$y = 1.32$

$(0.39, 1.32)$