11-18-2015

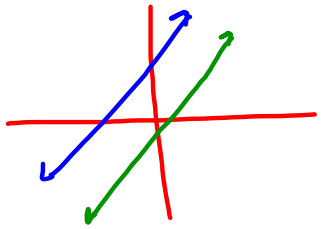
Solutions to Systems of equations

Parallel lines-

Def: • Lines, or equations that have the same slope.
• # in front of x will be the same.

- Parallel lines will never touch.
- Never have a solution in a system of equation.

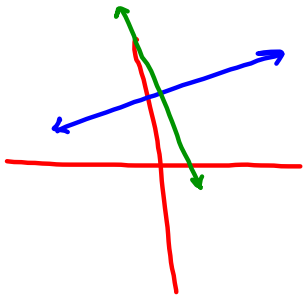
Ex.



Perpindicular lines:

Def: Two lines that have opposite (changing sign) Reciprocal Slopes.

Ex:



* Two lines are perpindicular & 1 line has a slope of $\frac{7}{4}$
* other lines slope will be $\frac{-4}{7}$

Reciprocal:

Def: flipping a fraction & making the numerator the denominator, & the denominator the numerator.

Ex:

$\frac{3}{1} \rightarrow \frac{1}{3}$ Rec.

$\frac{1}{4} \rightarrow \frac{4}{1}$ Rec.

$-\frac{5}{6} \rightarrow \frac{6}{5}$ Opp Rec.

Warm-up

1) $2(x+5) = 20$

$2x + 10 = 20$

$-10 \quad -10$

$\frac{2x}{2} = \frac{10}{2}$

$x = 5$

2) $(3, -2) \quad (8, 11)$

$x_1 \; y_1 \qquad x_2 \; y_2$

$\frac{y_2 - y_1}{x_2 - x_1} \rightarrow \frac{11 - -2}{8 - 3} = \frac{13}{5}$

Systems of equations

Ex: $\begin{cases} y = 4x - 5 \\ y = \frac{1}{2}x + 2 \end{cases}$

Def: 2 or more linear equations.

Solutions to Systems of equations - 3 ways to solve

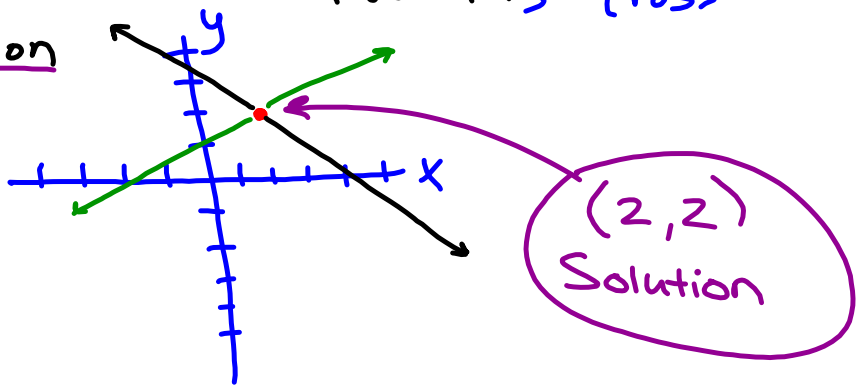
- Graphing ★
- Substitution ★
- Elimination

★ Graphing Solutions to systems of equations ★

Solutions - Intersection point between all lines given.

Intersection - where two lines cross

- Intersection point, Solution.



Ex

$y = 2x + 4$

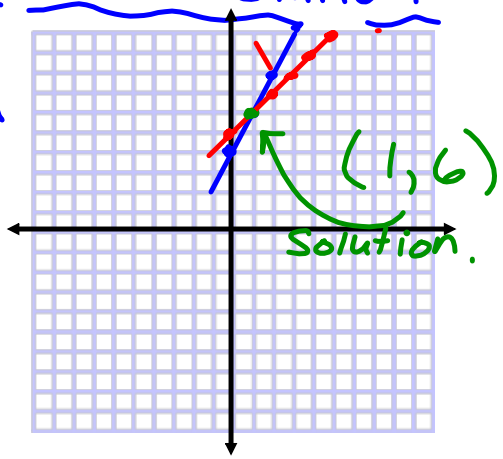
$y = x + 5$

* Find the solution

$y = 2x + 4$

y-int

Slope $= \frac{2}{1}$



$y = x + 5$

y-int

Ex 2

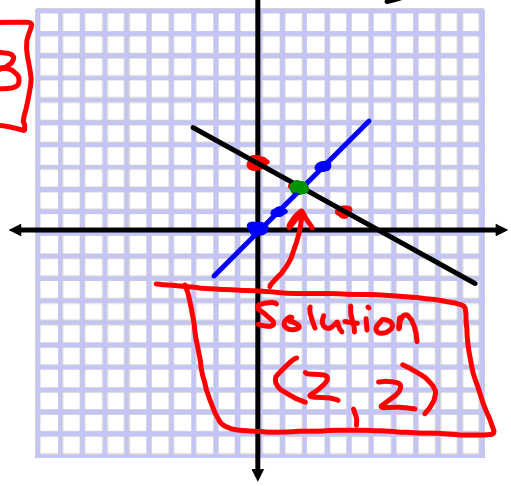
$y = -\frac{1}{2}x + 3$

$y = x$

$y = -\frac{1}{2}x + 3$

y-int

Slope $= \frac{-1}{2}$



$y = x + 0$

y-int.

Slope $= 1$

Warm-up

① $2(x+5)=20$

$2x+10=20$

$-10 \quad -10$

$\frac{2x}{2}=\frac{10}{2}$

$x=5$

$2x+5$

$\times$

② $(3,-2)$ & $(8,11)$

$x_1 \; y_1 \qquad x_2 \; y_2$

$\frac{y_2-y_1}{x_2-x_1} \rightarrow \frac{11--2}{8-3}=\frac{13}{5}$