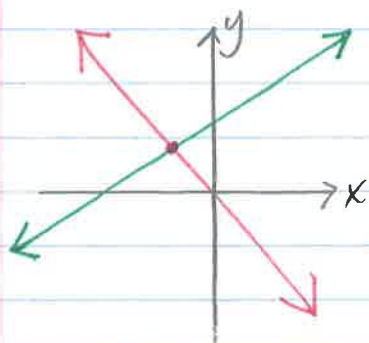


6.1 Graphing Systems

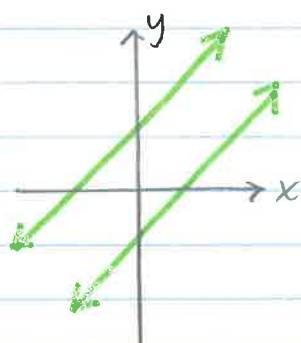
1/21/15

- Solve for y (both equations $y=mx+b$)
- Graph BOTH equations
- Find the point (x,y) of intersection.
- Verify
 - PLUG IT IN, PLUG IT IN (algebra)
 - USE calculator (calc, intersection)

TYPES OF SOLUTIONS



ONE SOLUTION
meaning they intersect
ONCE
 (x,y)



NO SOLUTION
meaning they
NEVER intersect
(these lines are parallel)



ALL REAL NUMBERS
meaning INFINITE
intersections
(same line)

6.1 Solve by Graphing

Example 1:

$$\checkmark 4x + y = 2$$

$$y = -4x + 2$$

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

$$x - y = 3$$

$$y = x - 3$$

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

1. get y alone
2. graph
3. Note intersect (x, y)
4. Verify in original

The lines cross at ONE point.

One Solution: (1, -2)

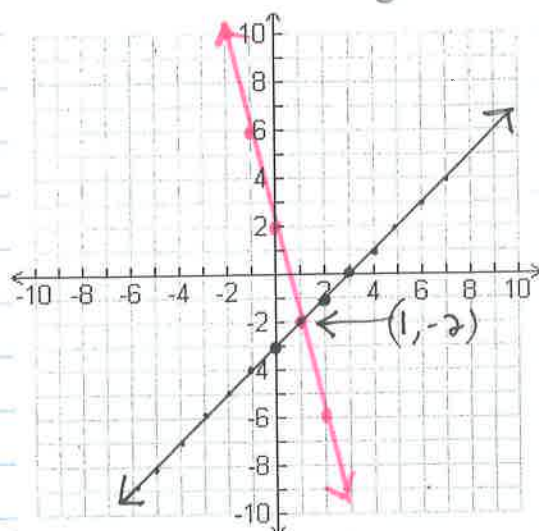
Verify in BOTH original equations

$$(1, -2) \checkmark$$

$$\begin{aligned} 4x + y &= 2 \\ 4(1) + (-2) &= 2 \\ 4 - 2 &= 2 \\ 2 &= 2 \\ \text{true} \end{aligned}$$

$$(1, -2) \checkmark$$

$$\begin{aligned} x - (y) &= 3 \\ 1 - (-2) &= 3 \\ 1 + 2 &= 3 \\ 3 &= 3 \\ \text{true} \end{aligned}$$



Both verified so I feel confident in my answer. If one was false that means I made a mistake!

VERIFY WITH CALCULATOR

Press $\boxed{Y=}$ and enter the two equations (must be y = form)

Press $\boxed{\text{graph}}$ located top right Press $\boxed{\text{ZOOM}} \boxed{6}$ for 10x10 window.

Press $\boxed{2nd} \boxed{\text{TRACE}}$ CALC ← you want the written functions

Select Intersection OR Press $\boxed{5}$

First Curve? $\boxed{\text{ENTER}}$ Second Curve? $\boxed{\text{ENTER}}$ Guess $\boxed{\text{ENTER}}$

Answer will be on bottom of screen.

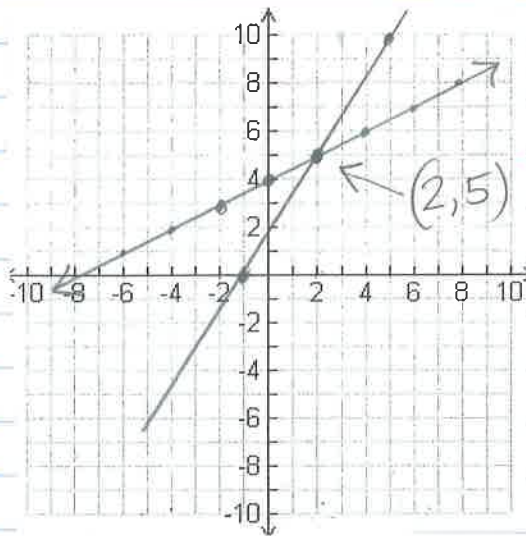
Day 2 Graph Example 2

$$-2y - 1x = 8$$

$$\begin{array}{r} -2y = 8 + 1x \\ -2y - 2 - 2 \end{array}$$

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

x	y
-2	3
-1	3.5
0	4
1	4.5
2	5



$$3y - 5x - 5 = 0$$

$$\begin{array}{r} -5x - 5 = -3y \\ -3 - 3 - 3 \end{array}$$

$$\frac{5x + 5}{3} = y \quad \downarrow$$

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

no x
pretty so
use
table

When you plot a few points, use the slope and keep making more to avoid ruler error

x	y
-1	0
0	5/3
1	3.3
2	5
5	10

One Solution (2, 5) ✓

check:

$$2y - x = 8$$

$$2(5) - 2 = 8$$

$$8 = 8$$

check

$$3y - 5x - 5 = 0 \quad \checkmark$$

$$3(5) - 5(2) - 5 = 0$$

$$0 = 0$$

USING CALC FOR XY-table

1. Solve for y 1st
2. Press $y =$ enter one equation
3. press 2^{nd} \leftarrow TABLE \leftarrow Graph
4. Find points you want & copy table onto paper