

Day 23

3.1 Solving Systems of Equations by Graphing

System	Lines	Solution
<p>① Independent</p> <p>ex $y = 3x + 4$ $y = -x$</p> <p>ex $x = 4$ vertical $y = 3$ horizontal</p>	<p>Intersecting Lines</p> <p>- different slopes</p>	<p>1 solution that is the ordered pair where they intersect (x, y)</p>
<p>② Inconsistent</p> <p>ex $y = 3x + 4$ $y = 3x - 2$</p> <p>↑ same</p>	<p>Parallel Lines</p> <p>- same slope - different y-ints.</p>	<p>NO Solution</p>
<p>③ Dependent</p> <p>$y = -4x - 2$</p> <p>$-2y = 8x + 4$</p> <p>← solve for y</p> <p>$y = -4x - 2$</p>	<p>Coinciding (the SAME) LINE</p> <p>* IF both eqs are in $y = mx + b$ form, everything is the same</p> <p>* eqs. are multiples of each other</p>	<p>MANY SOLUTIONS</p> <p>$1 \{ 4x + 2y = 6$</p> <p>$2 \{ 2x + y = 3$</p> <p>multiply eq. #2 by 2, I would get eq. #1</p>

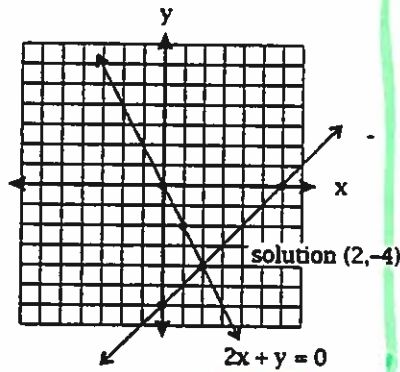
3.1 Solving Systems by Graphing

Estimate the solution of the system by graphing.

Example: $\begin{cases} x - y = 6 \\ 2x + y = 0 \end{cases}$

x	y
0	-6
6	0

x	y
0	0
0	0
1	-2



Horizontal

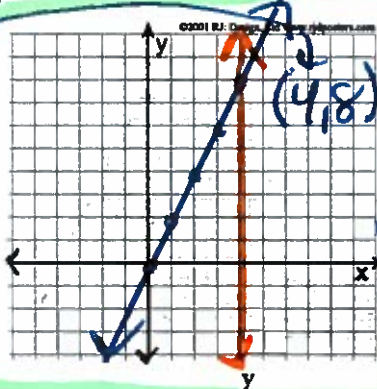
1. $\begin{cases} y = 6 \\ 2x - 2y = -4 - 2x \end{cases}$

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

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

Independent

2. $\begin{cases} x = 4 \\ y = 2x + 0 \end{cases}$
 $m = \frac{2}{1}$



coinciding Lines

3. $\begin{cases} y = 2x + 3 \\ -4x + 2y = 6 \end{cases}$

$$\begin{array}{r} y = 2x + 3 \\ -4x + 2y = 6 \\ \hline +4x \quad +4x \end{array}$$

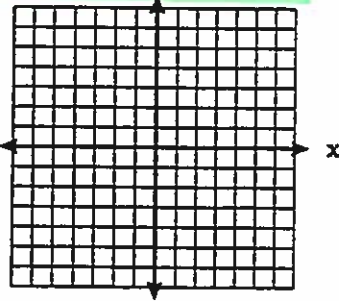
$$\frac{2y = 4x + 6}{2} = \frac{4x + 6}{2}$$

$$y = 2x + 3$$

exactly same

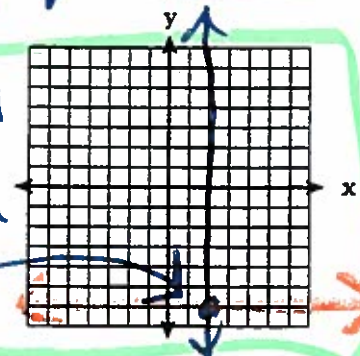
Many Solutions

4. $\begin{cases} y = 2x - 5 \\ x - y = 1 \end{cases}$



5. $\begin{cases} x = 2 \text{ vertical} \\ y = -6 \text{ horizontal} \end{cases}$

part of intersection
 $(2, -6)$



6. $\begin{cases} 2x + y = -6 \\ 2x + y = -10 \end{cases}$

$y = -2x - 6$

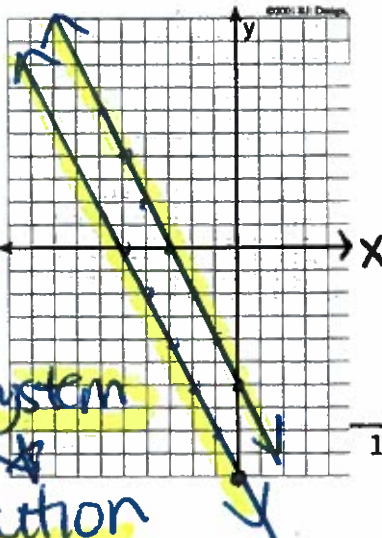
$y = -2x - 10$

same slope

Inconsistent system

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NO solution



7. $\begin{cases} y = 3x - 6 \\ y = 2x - 1 \end{cases}$

