

Name: Key

Class: _____

M8-U5: Notes #1 – Graphing Systems of Equations

Date: _____

Vocabulary:

A system of linear equations is two or more linear eqns

A solution of a system of linear equations is a coordinate pt that satisfies both eqns @ the same time.

Point of Intersections (POI) is the same thing as the solution of a system.

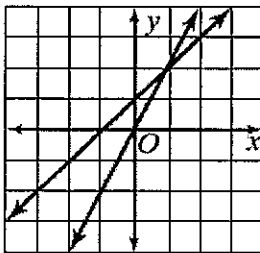
No solution means the lines don't have a common POI, therefore they must be parallel.

A system of equations has infinitely many solutions when the eqns are exactly the same.

Vocabulary and Key Concepts

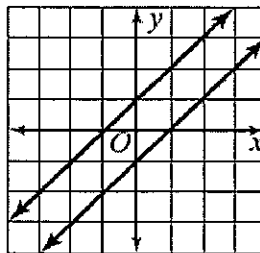
Numbers of Solutions of Systems of Linear Equations

different slopes



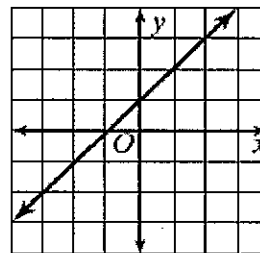
The lines intersect
so there is
one solution.

same slope
different y-intercepts



The lines are parallel
so there are
NO solutions.

same slope
same y-intercept

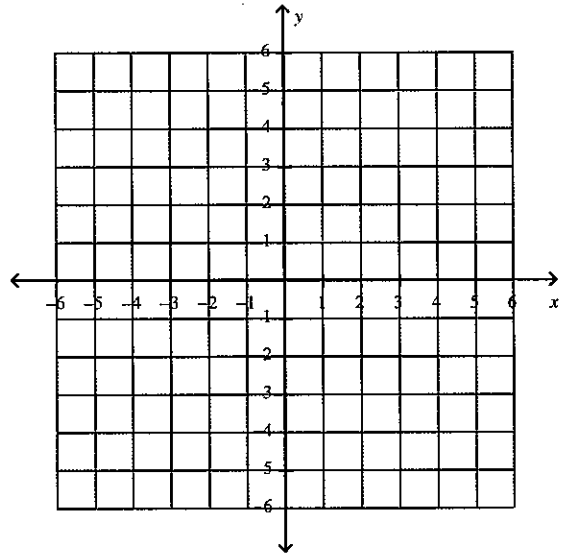


The lines are equal
so there are
infinitely many
solutions.

Systems with No solutions

1.) Solve by graphing: $\begin{cases} y = 3x + 2 \\ y = 3x - 2 \end{cases}$

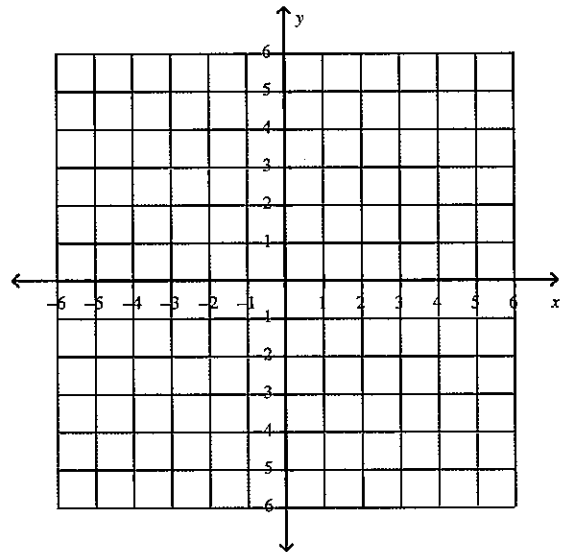
the lines are parallel,
same slope,
No solution



Systems with Infinitely Many solutions

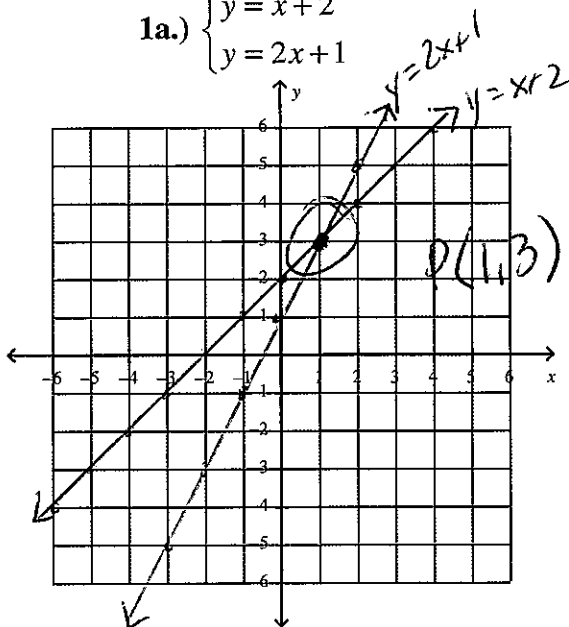
2.) $\begin{cases} y = -\frac{3}{4}x + 3 \\ y = -\frac{3}{4}x + 3 \end{cases}$

Same eqns
therefore
infinitely many
solutions.
identity!

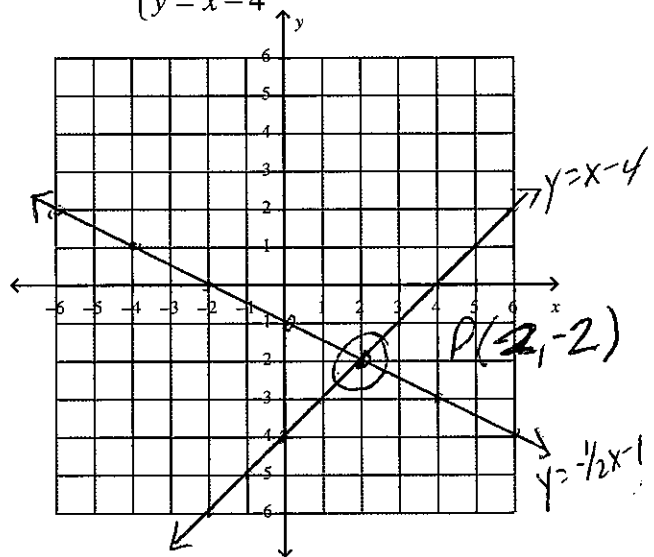


Examples:

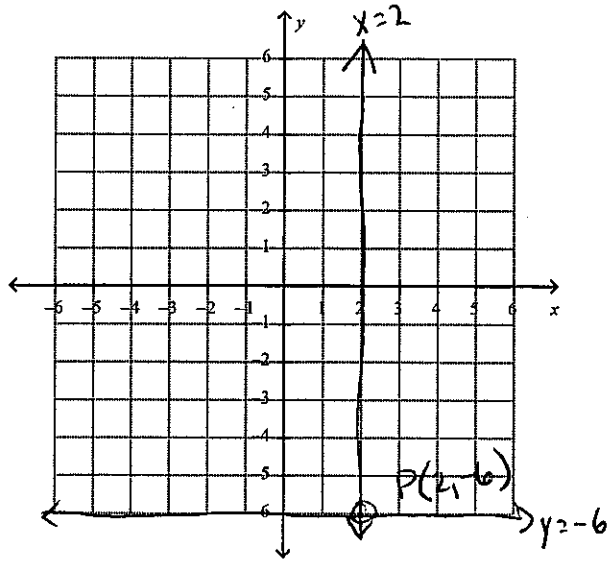
1a.) $\begin{cases} y = x + 2 \\ y = 2x + 1 \end{cases}$



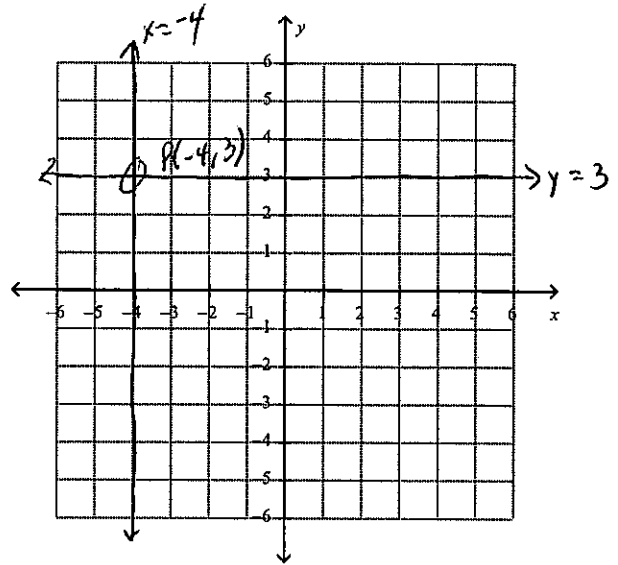
1b.) $\begin{cases} y = -\frac{1}{2}x - 1 \\ y = x - 4 \end{cases}$



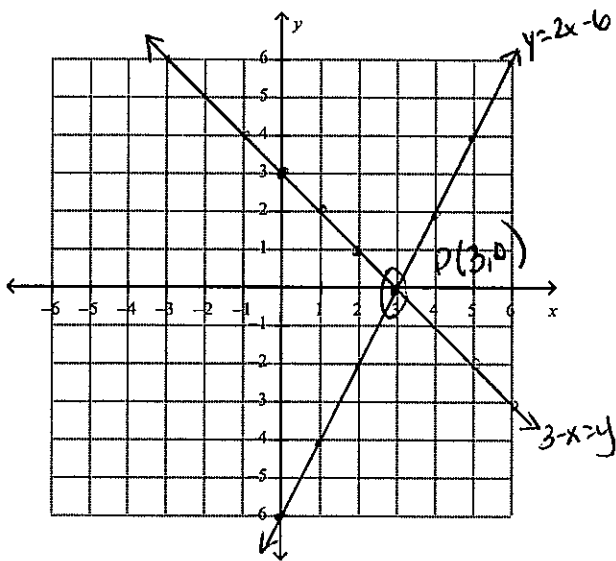
$$2a.) \begin{cases} x=2 \\ y=-6 \end{cases}$$



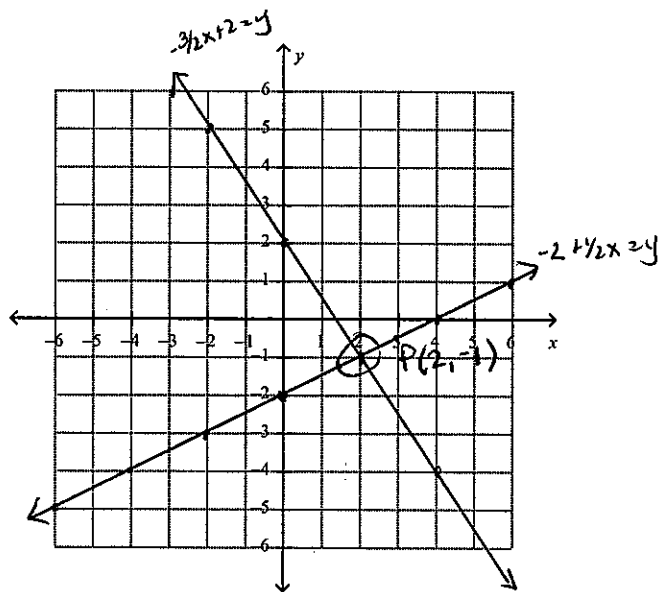
$$2b.) \begin{cases} y=3 \\ x=-4 \end{cases}$$



$$3a.) \begin{cases} 2x-6=y \\ 3-x=y \end{cases}$$

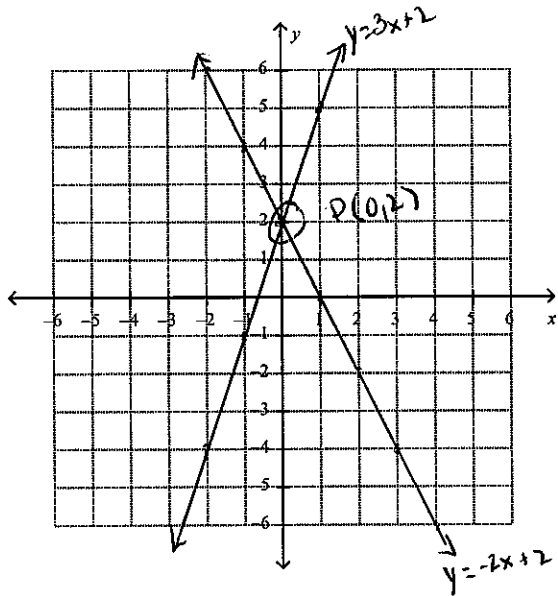


$$3b.) \begin{cases} -\frac{3}{2}x+2=y \\ -2+\frac{1}{2}x=y \end{cases}$$

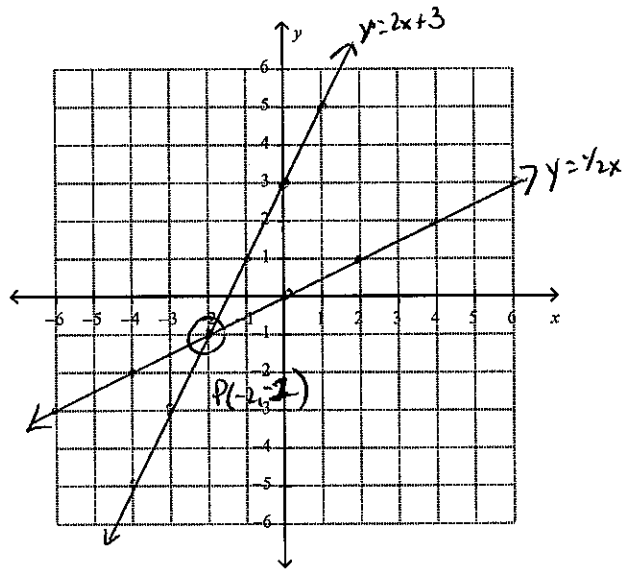


Practice:

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



2.
$$\begin{cases} y = 2x + 3 \\ \frac{1}{2}x = y \end{cases}$$



3.
$$\begin{cases} y = 2x - 5 \\ y = -\frac{1}{3}x + 2 \end{cases}$$

