

objective: To solve systems of linear equations by graphing.

1/16/19

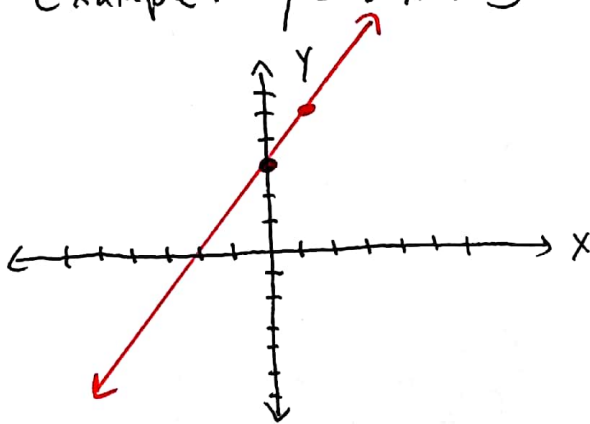
System of Linear Equations: Two or more linear equations

Solution of a system of linear equations: Is where the two lines intersect or an ordered pair, (x, y) , that makes both equations true.

1.) slope-intercept: $y = mx + b$

$$m = \text{slope} = \frac{\text{rise}}{\text{run}}$$

example: $y = 2x + 3$ $m = \frac{2}{1}$ $b = y\text{-intercept}$



steps:

1.) plot (b) $y\text{-int}$ on $y\text{-axis}$

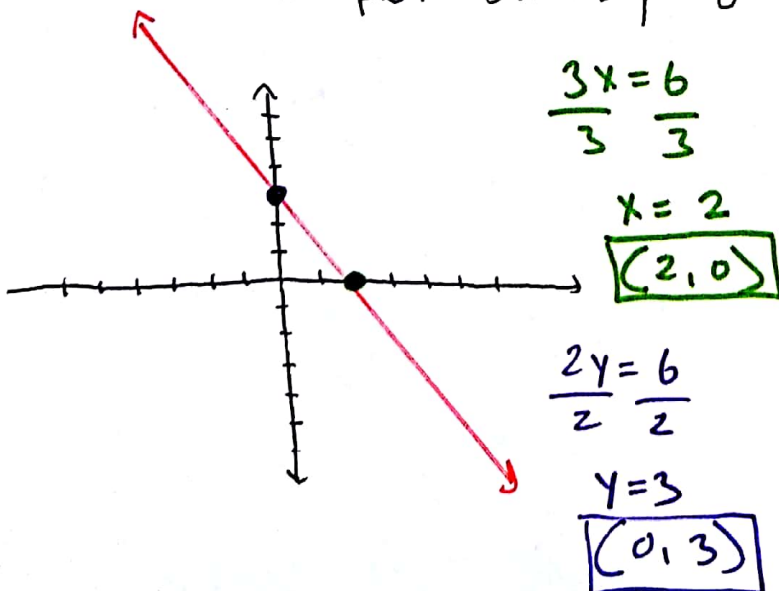
2.) plot second point from b , using

$$\frac{\text{rise}}{\text{run}} = m$$

3.) connect with a line.

2.) standard form: $Ax + By = C$

example: $3x + 2y = 6$



$$\frac{3x}{3} = \frac{6}{3}$$

$$x = 2$$

$$(2, 0)$$

$$\frac{2y}{2} = \frac{6}{2}$$

$$y = 3$$

$$(0, 3)$$

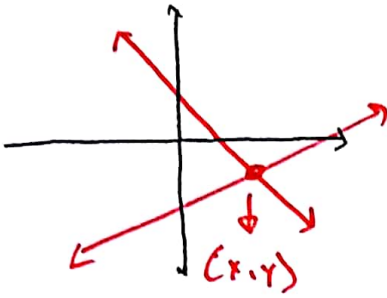
x-y intercept method

1.) $x\text{-int}$: plug in zero for y and solve for x . $(x, 0)$

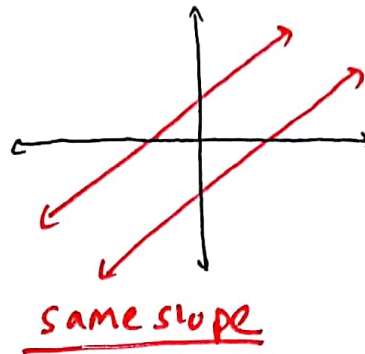
2.) $y\text{-int}$: plug in zero for x and solve for y . $(0, y)$

3.) connect with line.

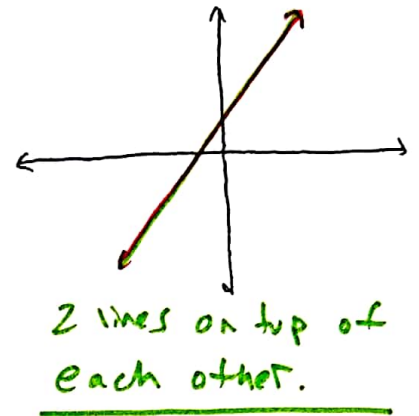
a.) 1 solution



b.) 0 solutions

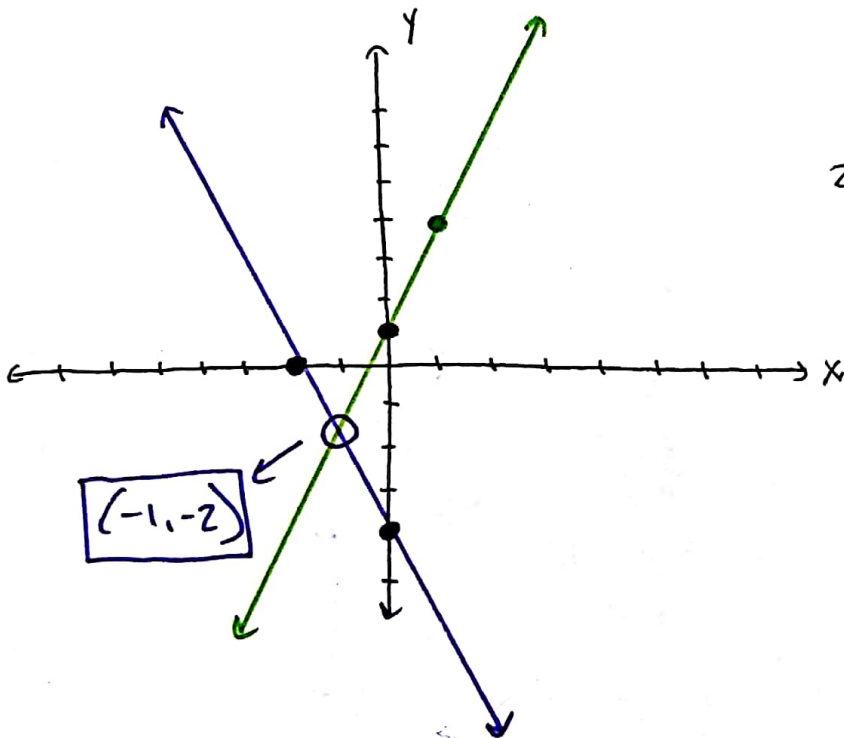


c.) infinitely many solutions



Example: $y = \frac{3}{1}x + 1$ •

$4x + 2y = -8$ •



1.) graph lines using
slope-intercept method
or x-y intercept method

2.) Identify point of intersection

$$\frac{4x = -8}{4} \quad \frac{-8}{4}$$

$$x = -2$$

$$(-2, 0)$$

$$\frac{2y = -8}{2} \quad \frac{-8}{2}$$

$$y = -4$$

$$(0, -4)$$