C2 - # of Solutions to a System

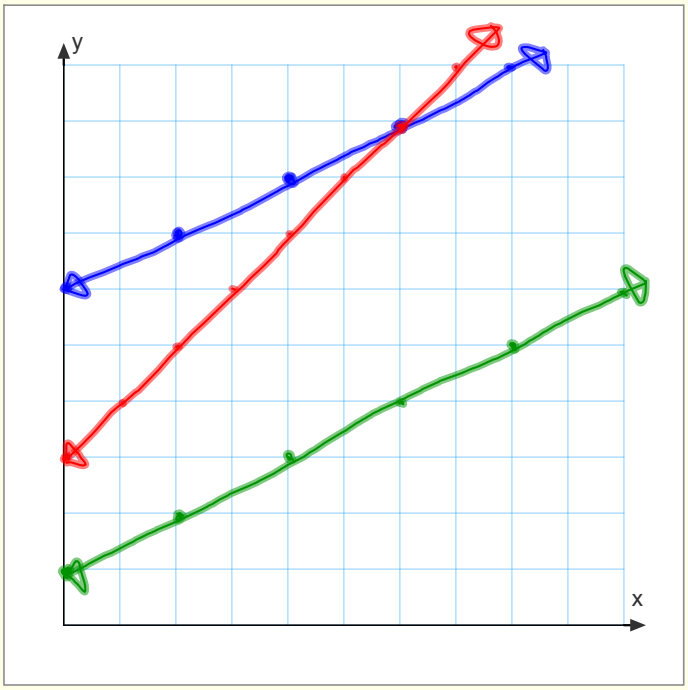
Know that a system of linear equations may have one, none or an infinite # of solutions

Determine the number of solutions to a system of linear equations

Create a system of linear equations with a specified number of solutions

What do you see? Board Activity

Look at the graph below and write down anything that you see that is relevant to Systems of Linear Equations. Be prepared to share with the class.

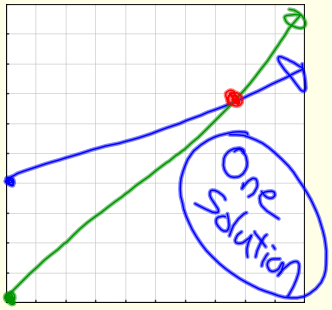


Race Activity

Volunteer Racers? Make a track and model each scenario. For each scenario, plot a graph of both racers. When will the racers be side by side?

Racer A: Head Start
Racer B: Faster

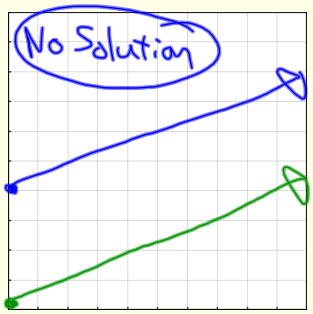
Intersecting Lines



$m \neq$
b doesn't matter

Racer A: Head Start
Racer B: Same Speed

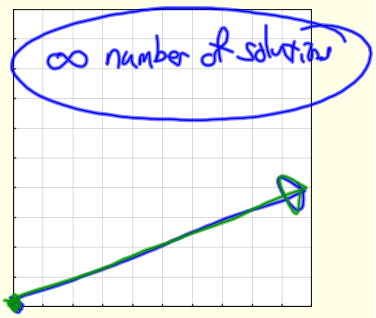
Parallel Lines



$m =$
$b \neq$

Racer A: Same Start
Racer B: Same Speed

Coincident Lines



$m =$
$b =$

Use the Distance Time Graphs Gizmo to further illustrate the Race Activity

Copy above as notes
& read pg. 178: Key Ideas

Determine # of Solutions

For each of the following, predict the # of solutions and then verify by graphing.

a) $y = \frac{1}{2}x + 3$
$y = \frac{1}{2}x - 4$

$m =$
$b \neq$

Zero Sol'n

b) $y = 2x - 4$
$y = -\frac{1}{3}x + 3$

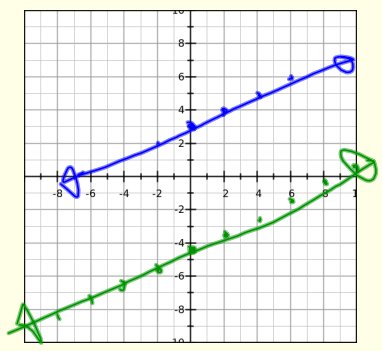
$m \neq$

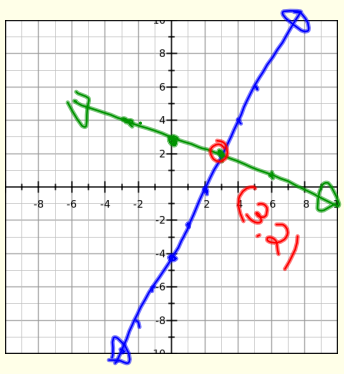
One Sol'n

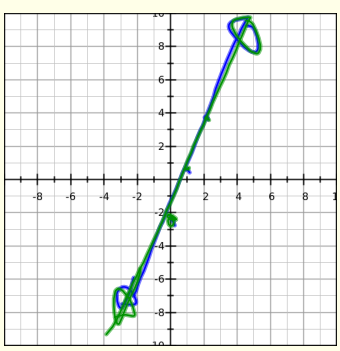
c) $y = 3x - 2$
$y = 3x - 2$

$m =$
$b =$

∞ Sol'ns







Determine # of Solutions

Predict the # of solutions and then verify by graphing.

$$x - 2y + 6 = 0$$
$$4x + y - 3 = 0$$

$x-2y+6=0$

$-2y = -x - 6$

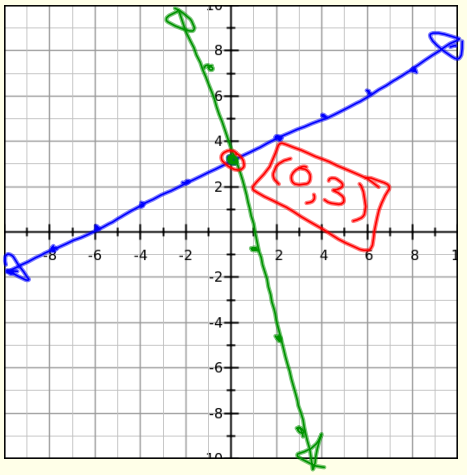
$\frac{-2y}{-2} = \frac{-x}{-2} - \frac{6}{-2}$

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

$4x+y-3=0$

$y = -4x + 3$

$m \neq$ ∴ one soln



Practice: C2 Assignment