

Linear Combination - Quiz 2

Consider the following set of equations:

$$\begin{cases} -a + 3b = 1 \\ -a + 3b = 5 \end{cases}$$

Quiz Question

What is the solution for a and b?

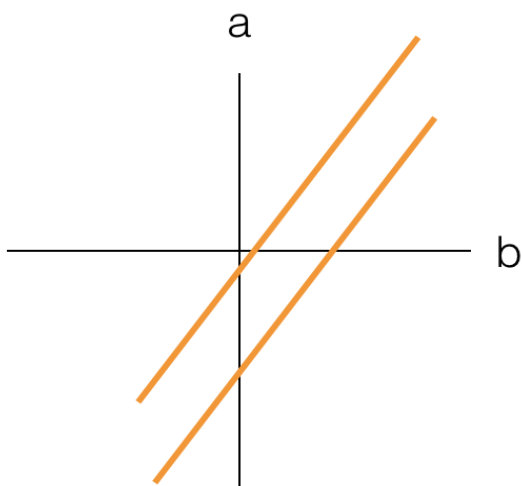
- There is no solution
- $a = 0, b = 0$
- I don't have enough information
- There are infinite number of solutions

Answer:

There is no solution

What does it mean that there is no solution? How can that be?

Try sketching the lines. What do you see?



Since these two lines are parallel, they do not intersect, therefore, there is no solution. (As there is not a point on the plot that will satisfy both equations simultaneously).

As a comparison, the two lines in the plot below represent two independent linear equations with one solution. The solution will be the point on the graph (here in the blue x) satisfying both equations.

