3.1 Systems of Linear Equations

Study 3.1 # 1, 5, 13

on-line geogebra:
Systems of 2 Linear Eq.

3.1 Systems of Linear Equations

Given: $-3x + y = 1$

How many solutions? _____

What about: A: $y = 2x$

B: $x - 3y = 0$

How many solutions? _____

3.1 Systems of Linear Equations

What about: A: $y = 2x$

B: $x - 3y = 0$

How many solutions? _____

Is (1,2) a solution? _____

3.1 Systems of Linear Equations

What about: A: $y = 2x$

B: $x - 3y = 0$

How many solutions? _____

Is (1,2) a solution? NO

Substitute (1,2) in Eq. A:

A: $y = 2x$

$2 \;?\; 2(1)$

$2 = 2$ Yes. (1,2) is a solution for eq. A

Substitute (1,2) in Eq. B:

B: $x - 3y = 0$

$1 - 3(2) \;?\; 0$

$1 - 6 \neq 0$

$-5 \neq 0$ NO. (1,2) is NOT a solution for eq. B

3.1 Systems of Linear Equations

What about: A: $y = 2x$

B: $x - 3y = 0$

How many solutions? _____

Is (1,2) a solution? NO

$-5 \neq 0$ NO. (1,2) is NOT a solution for eq. B

Need points that are on both lines.
Need (x,y) values that satisfy both equations.

3.1 Systems of Linear Equations

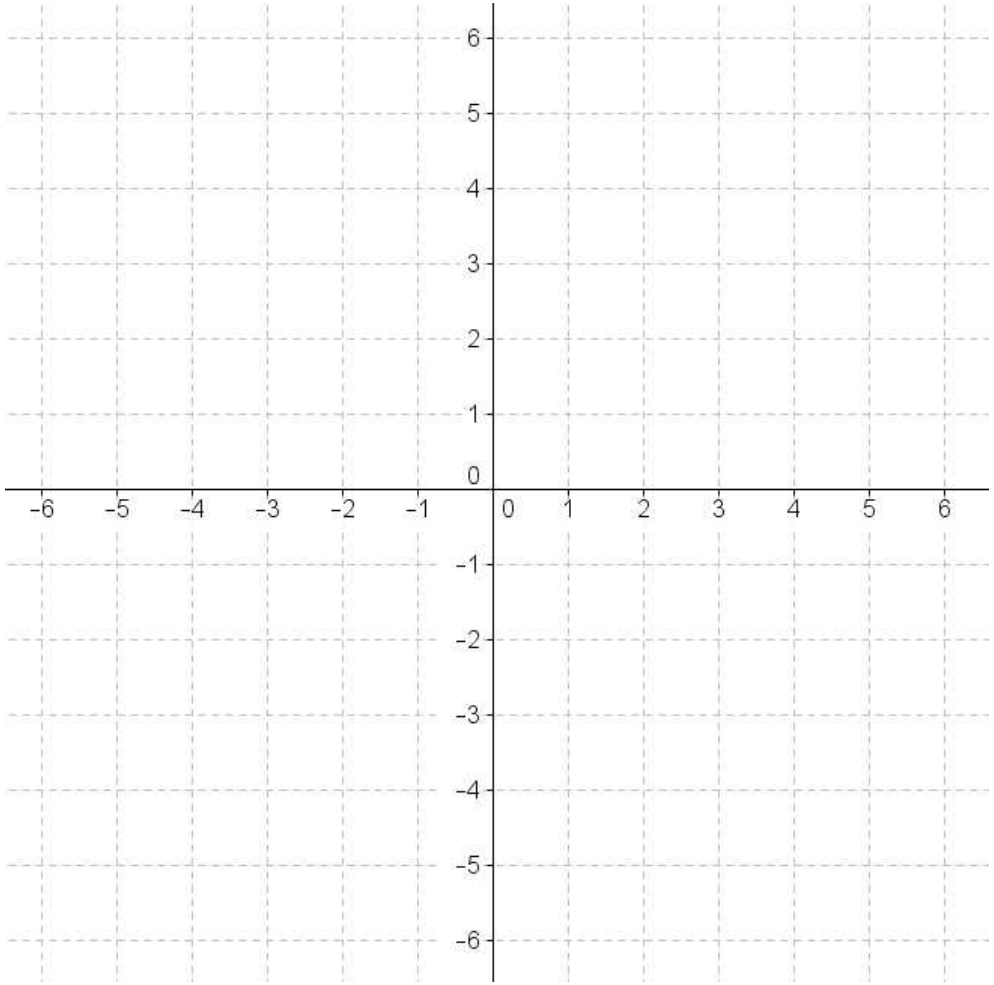
Solutions for a System of Linear Equations

Solution	Type	Lines
(x,y)	Independent	intersect
no points	Inconsistent	parallel
line	Dependent	same

3.1 Systems of Linear Equations

A: $y = 2x$
B: $x - 3y = 0$

What is the solution?



Class Notes: Prof. G. Battaly, Westchester Community College, NY

College Algebra Home Page

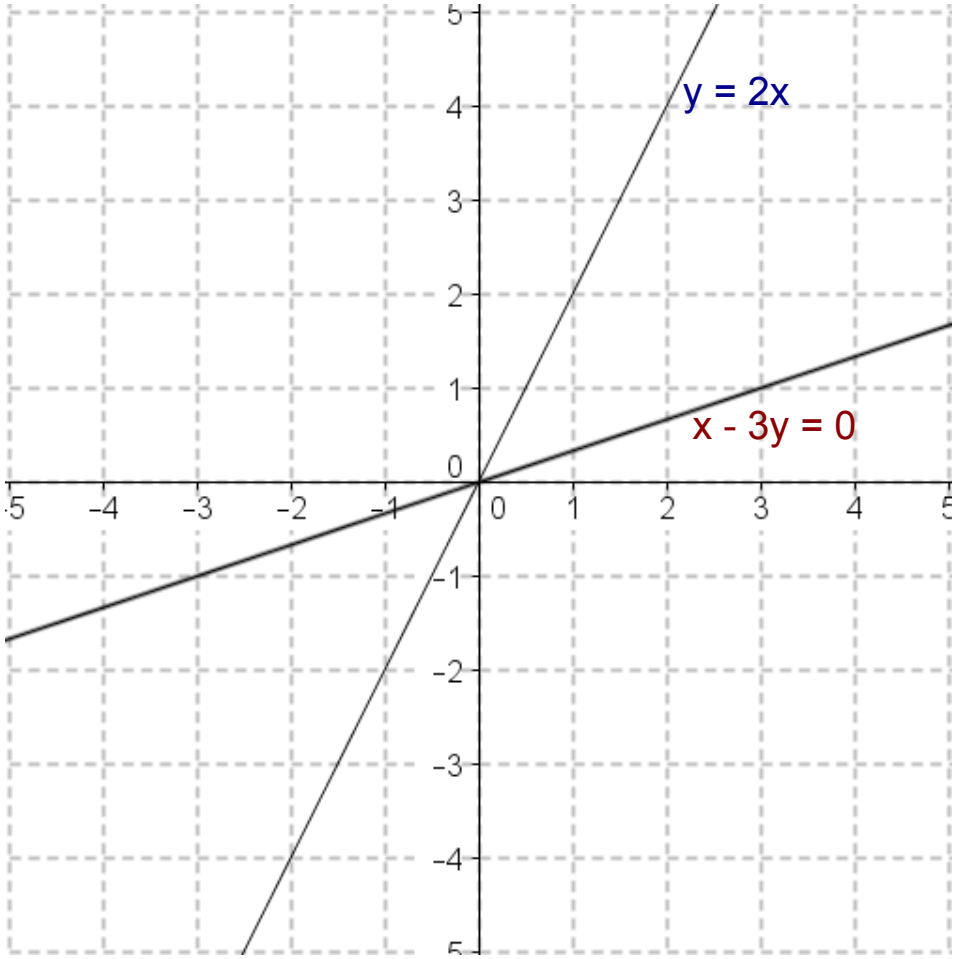
Homework Problems

3.1 Systems of Linear Equations

A: $y = 2x$
B: $x - 3y = 0$

What is the solution?

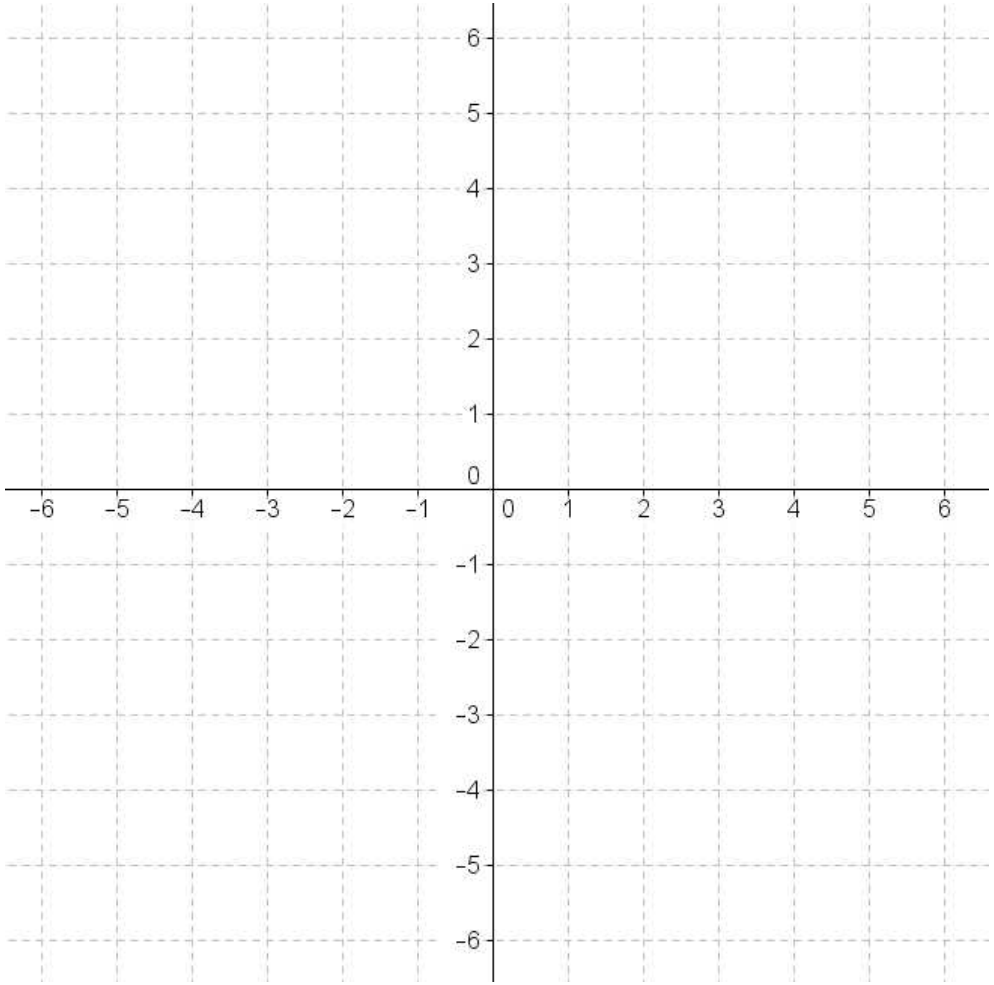
(0,0)



3.1 Systems of Linear Equations

A: y = x - 5
B: y = -2x + 4

Find the solution.



Class Notes: Prof. G. Battaly, Westchester Community College, NY

College Algebra Home Page

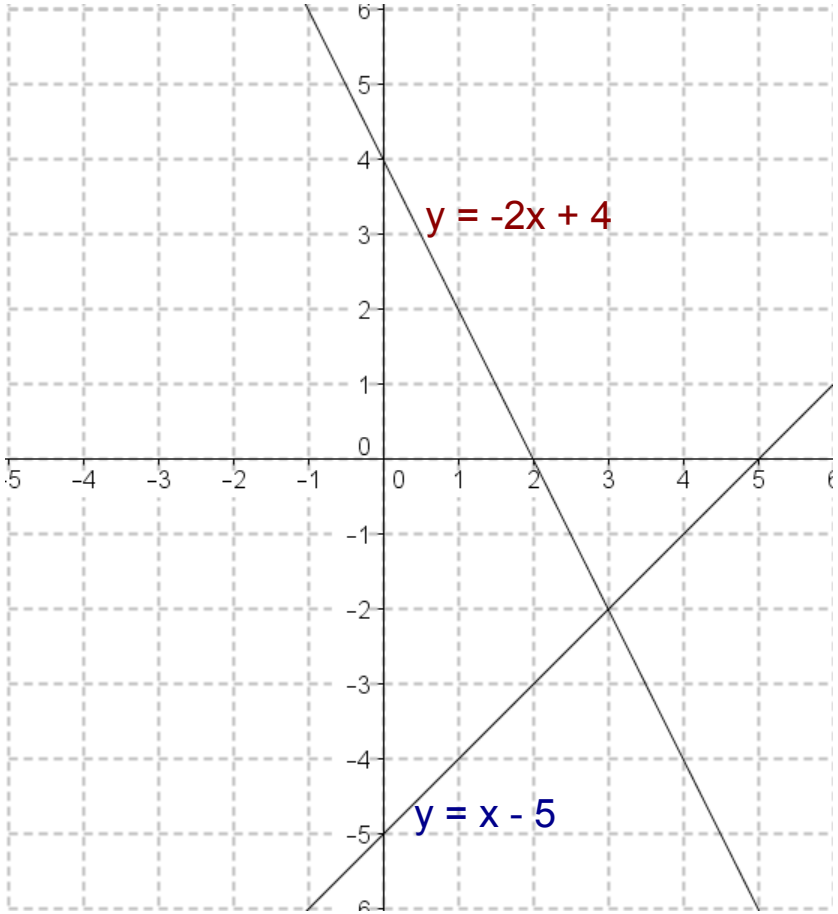
Homework Problems

3.1 Systems of Linear Equations

A: y = x - 5
B: y = -2x + 4

Find the solution.

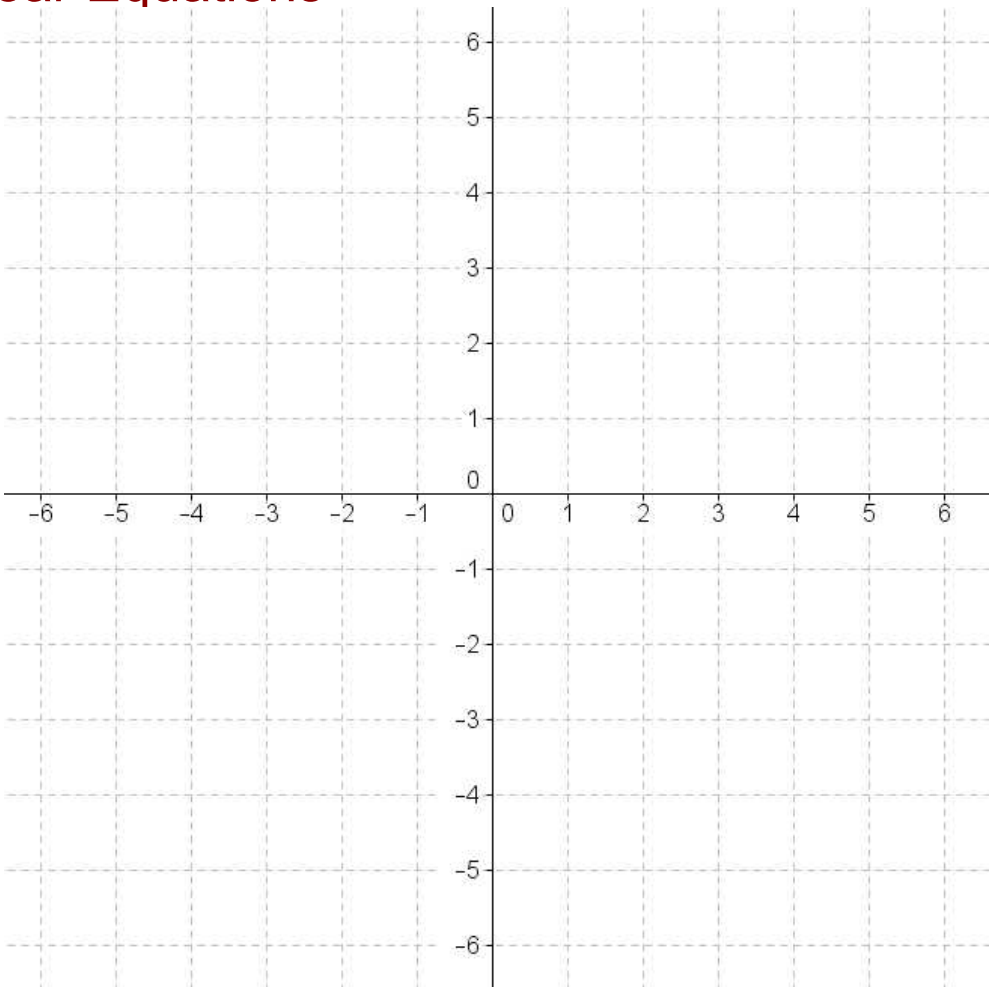
(3, -2)



3.1 Systems of Linear Equations

A: 20x - 8y = 16
B: -15x + 6y = 18

Find the solution.



Class Notes: Prof. G. Battaly, Westchester Community College, NY

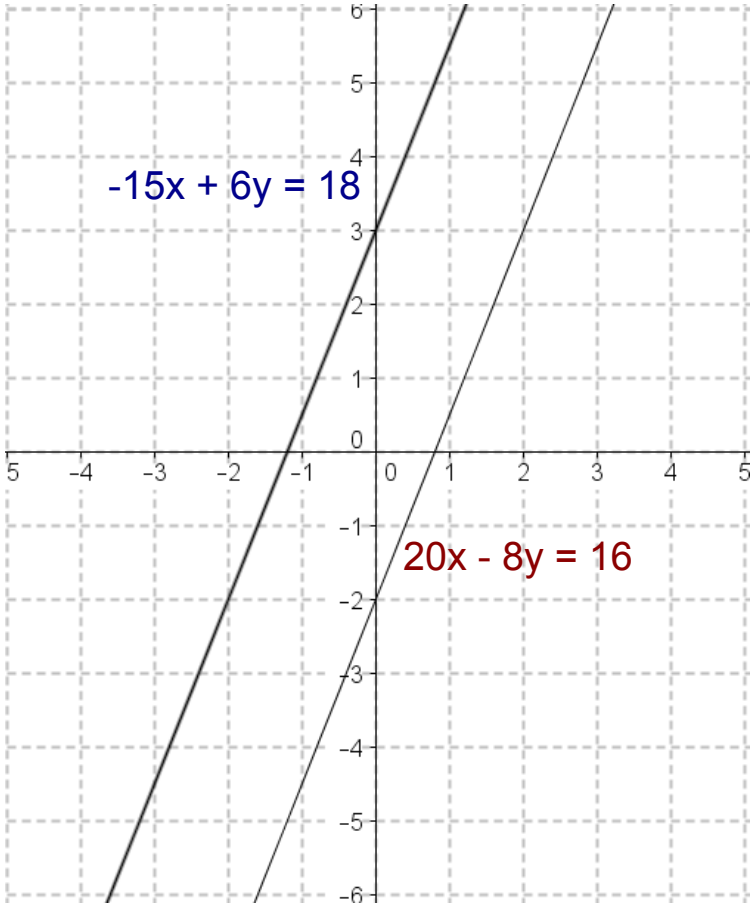
College Algebra Home Page

Homework Problems

3.1 Systems of Linear Equations

A: 20x - 8y = 16
B: -15x + 6y = 18

Find the solution.



Parallel Lines:

Inconsistent System

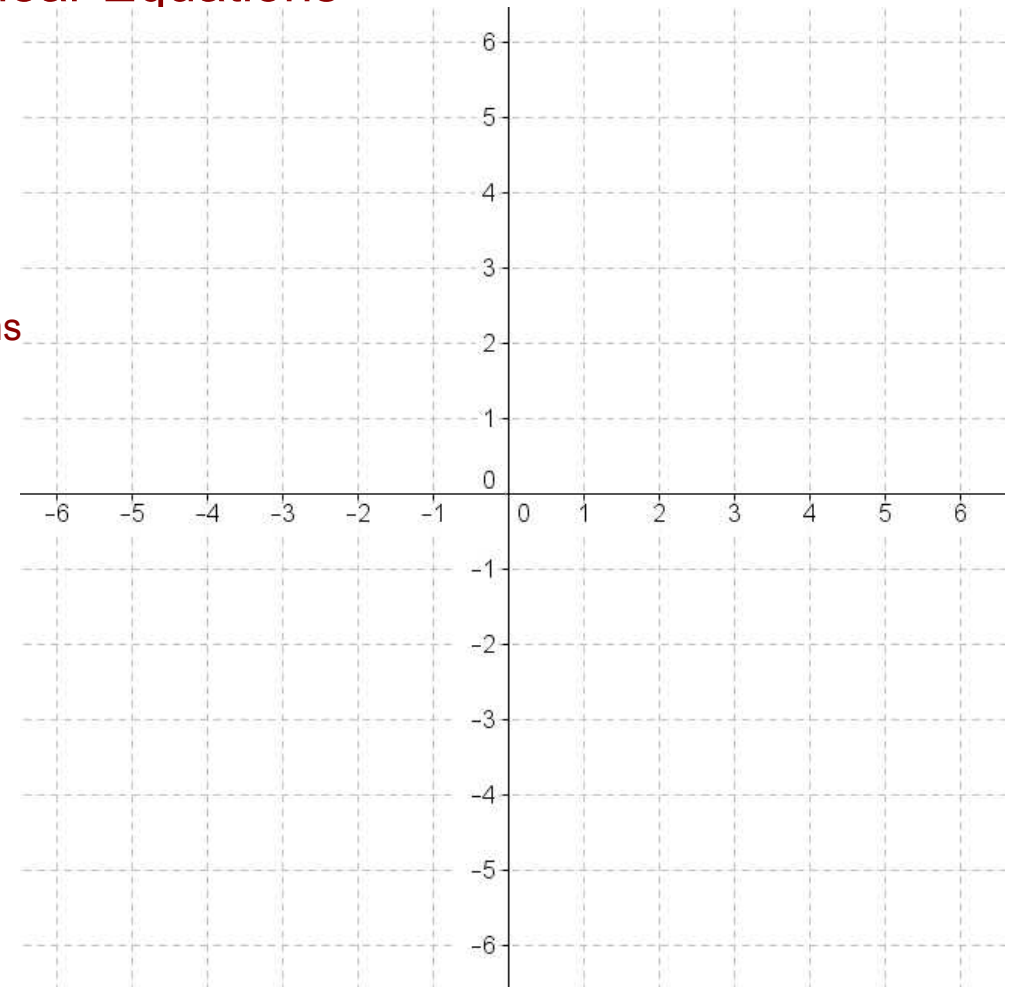
No points of intersection
Equal slopes.
Solution is empty set ϕ

3.1 Systems of Linear Equations

A: 2x - 3y = -6
B: x + 3y = -3

To find the solution, use the link below.
Enter the above equations into the input box below the graph.

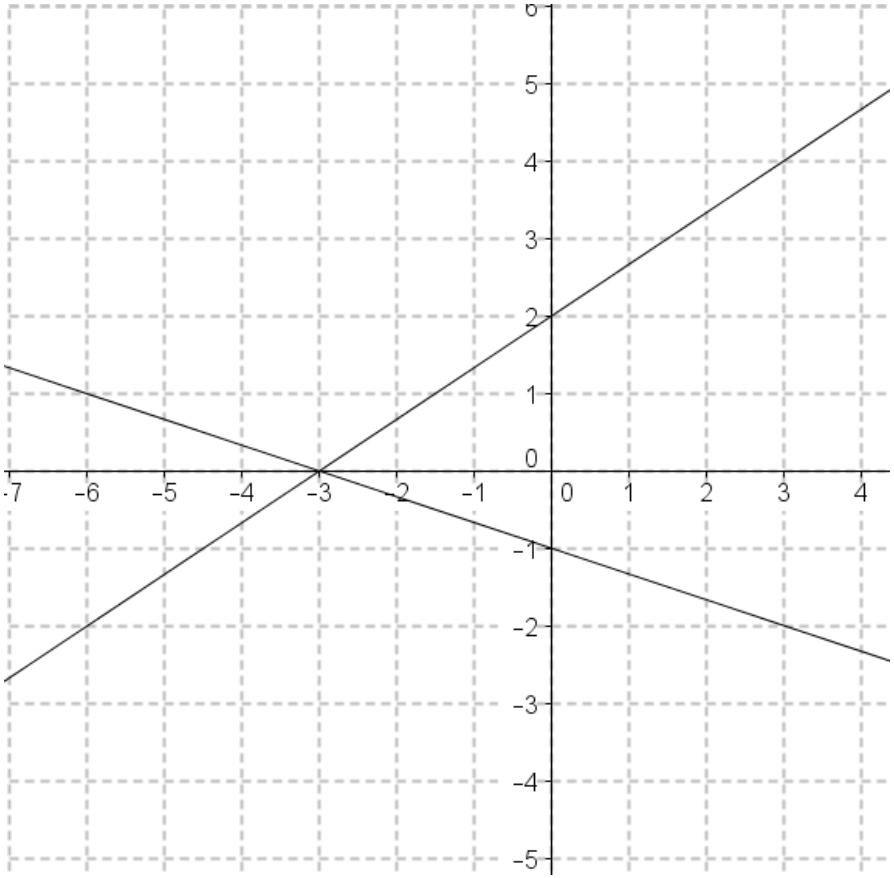
on-line geogebra:
Systems of 2 Linear Eq.



3.1 Systems of Linear Equations

A: 2x - 3y = -6
B: x + 3y = -3

To find the solution, use the link below.
Enter the above equations into the input box below the graph.



on-line geogebra:
Systems of 2 Linear Eq.

3.1 Systems of Linear Equations

Solutions for a System of Linear Equations

Solution	Type	Lines
(x,y)	Independent	intersect
no points	Inconsistent	parallel
line	Dependent	same

