Algebra 1 6.1

Determine the number of solutions to a system of linear equations

Solve systems of linear equations by graphing

linear equation

system of equations

y=mx+b

solution

consistent

inconsistent

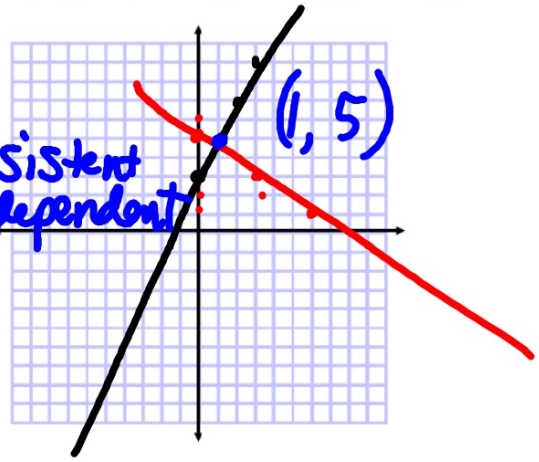
independent

dependent

intersection

$y = 2x + 3$

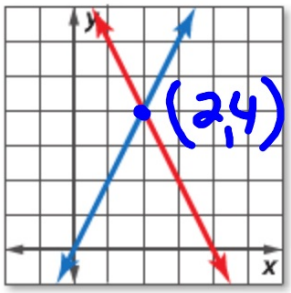
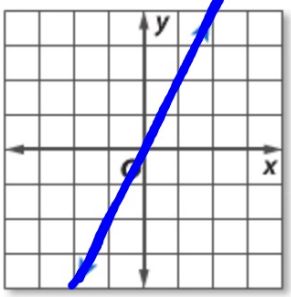
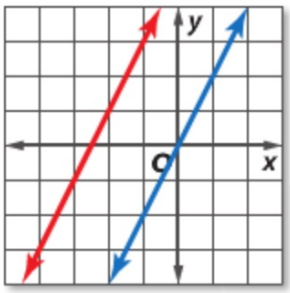
$y = -\frac{2}{3}x + 5$



2 pencils

whiteboards

ConceptSummary Possible Solutions

Number of Solutions	exactly one	infinite	no solution
Terminology	consistent and independent	consistent and dependent	inconsistent
Graph			

Example 1 Number of Solutions

Use the graph at the right to determine whether each system is *consistent* or *inconsistent* and if it is *independent* or *dependent*.

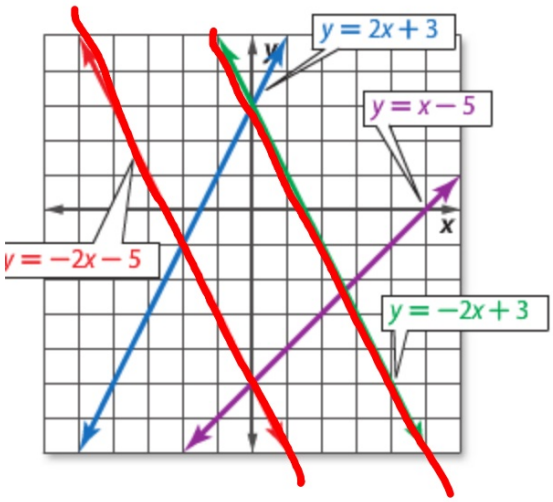
a. $y = -2x + 3$
$y = x - 5$

(2.5, -2.5)
consis + indep

b. $y = -2x - 5$
$y = -2x + 3$

NS
inconsistent

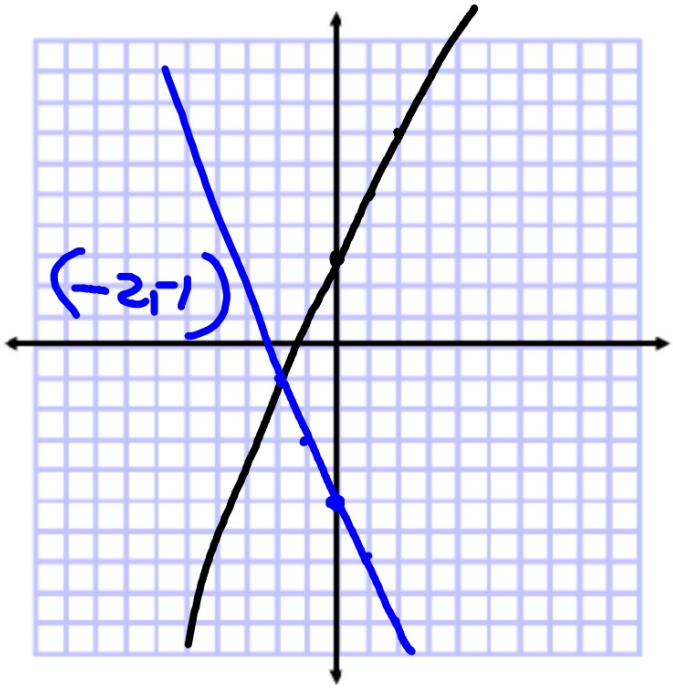
Find the lines
What is their relationship?
Answer the question.



GuidedPractice

1. $y = 2x + 3$
2. $y = -2x - 5$

Graph the lines
What is their relationship?
Answer the question.

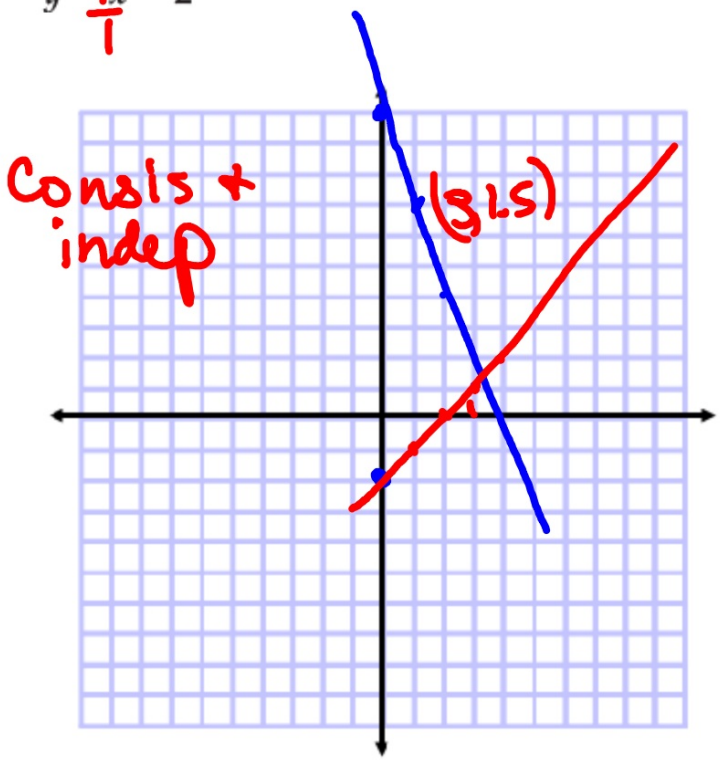


Example 2 Solve by Graphing

Graph each system and determine the number of solutions that it has. If it has one solution, name it. ordered pair!

a. $y = -3x + 10$

$y = \frac{1}{1}x - 2$



Whiteboards

b. $2x - y = -1$

$4x - 2y = 6$

$y = mx + b$

$4x - 2y = 6$

$-4x \quad -4x$

$-2y = -4x + 6$

$\frac{-2y}{-2} = \frac{-4x}{-2} + \frac{6}{-2}$

$y = 2x - 3$

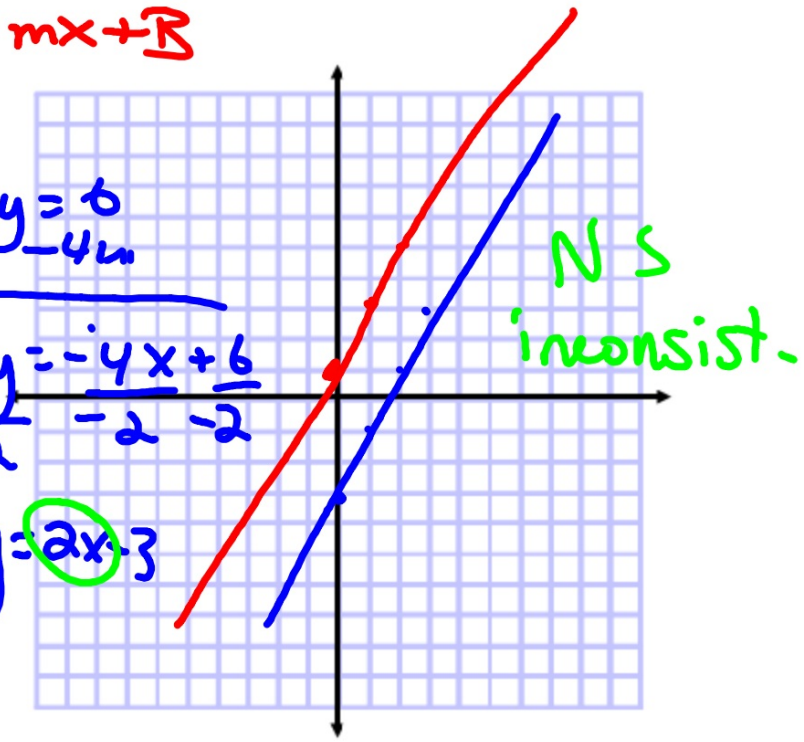
$2x - y = -1$

$-2x \quad -2$

$-y = -2x - 1$

$\frac{-y}{-1} = \frac{-2x}{-1} - \frac{1}{-1}$

$y = 2x + 1$



NS

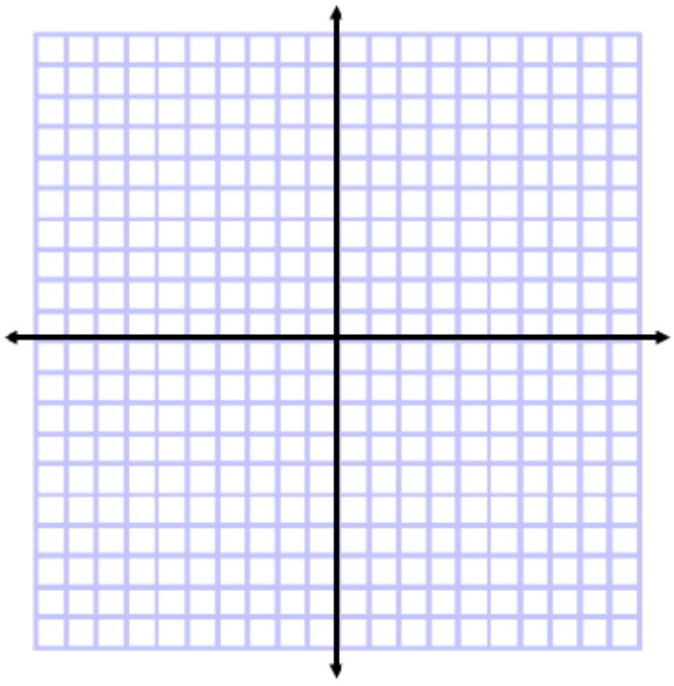
inconsist.

GuidedPractice

Graph each system and determine the number of solutions that it has. If it has one solution, name it.

2A. $x - y = 2$
$3y + 2x = 9$

2B. $y = -2x - 3$
$6x + 3y = -9$



What is rate of change? Starting point?

GuidedPractice

3. VIDEO GAMES Joe and Josh each want to buy a video game. Joe has $14 and saves $10 a week. Josh has $26 and saves $7 a week. In how many weeks will they have the same amount?