

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 2 (or more)

$y = mx + b$ $y = c$ $x = c$

solution

consistent

inconsistent

independent

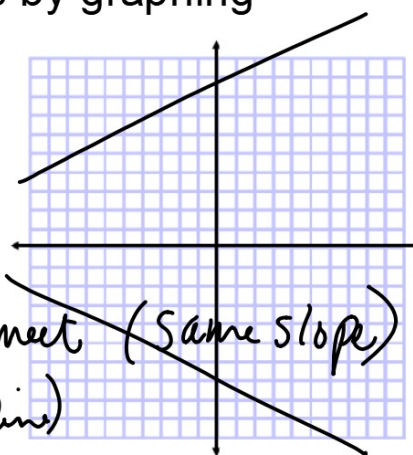
dependent

intersection

parallel - never meet (same slope)

one point

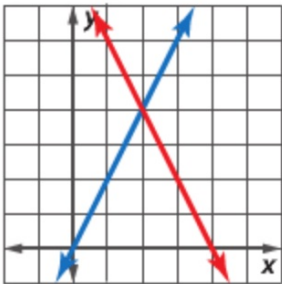
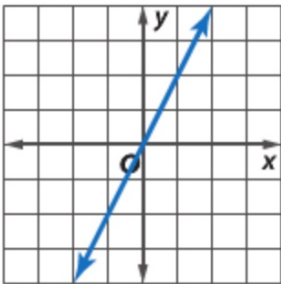
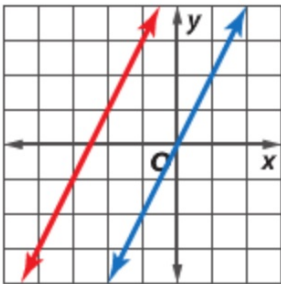
all points (same line)



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*.

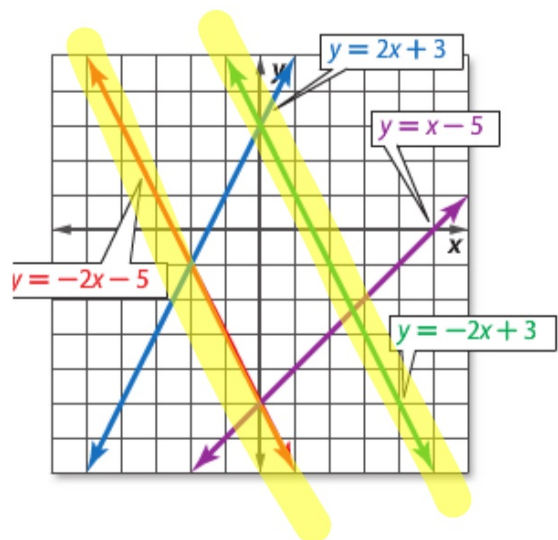
a. $y = -2x + 3$
 $y = x - 5$

one $(2.5, -2)$
cons. + indep

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

none
inconsis

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

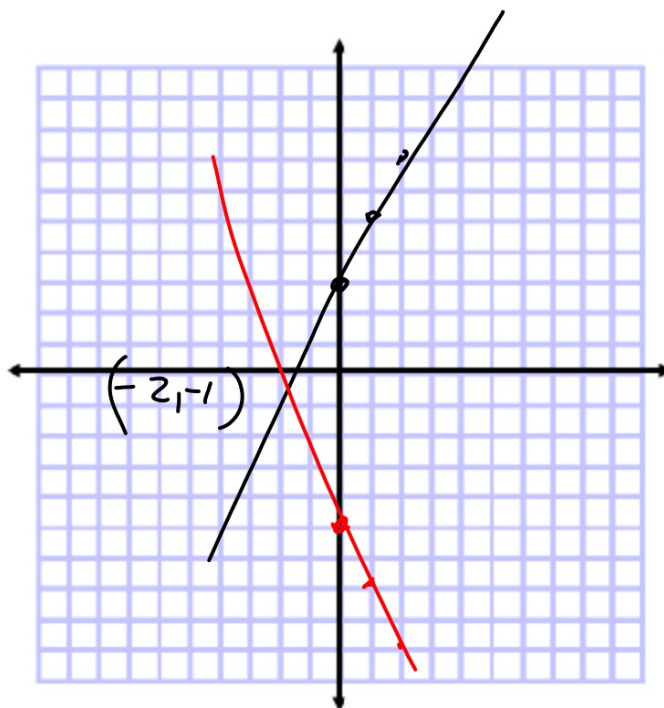


Guided Practice

1A. $y = 2x + 3$ ←
 $y = -\frac{2}{1}x - 5$

one
consis & indep

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

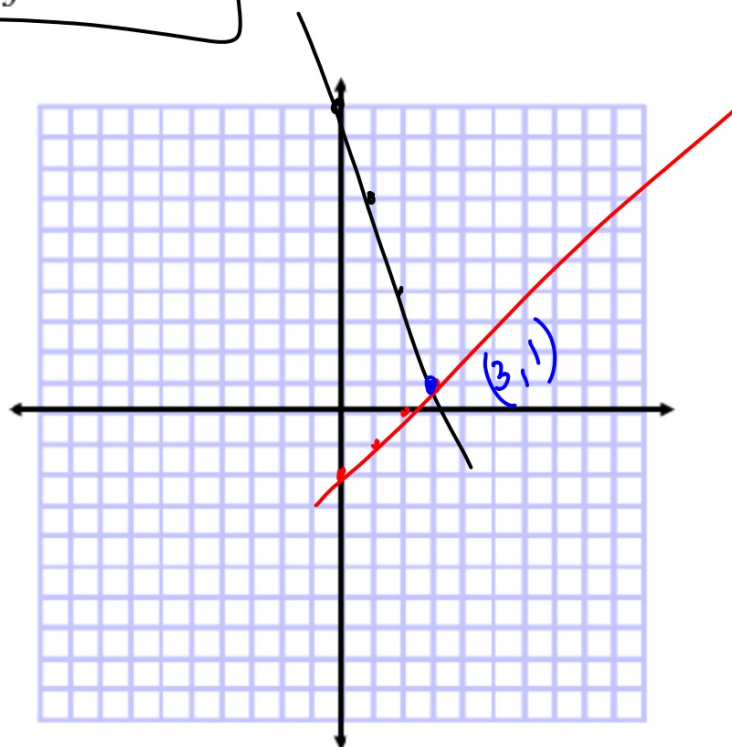




Example 2 Solve by Graphing

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

a. $y = -3x + 10$
 $y = x - 2$



Consis & indep

Whiteboards

b. $2x - y = -1$

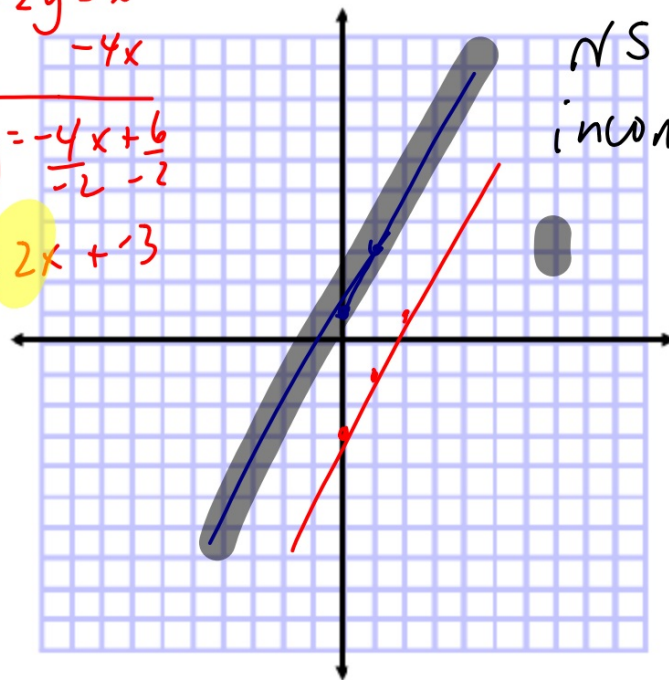
$4x - 2y = 6$

$$\begin{array}{r} 2x - y = -1 \\ -2x \quad -2x \\ \hline \end{array}$$

$$\begin{array}{r} -y = -2x - 1 \\ \hline y = 2x + 1 \end{array}$$

$$\begin{array}{r} 4x - 2y = 6 \\ -4x \quad -4x \\ \hline \end{array}$$

$$\begin{array}{r} -2y = -4x + 6 \\ \hline -2 \quad -2 \quad -2 \\ y = 2x + 3 \end{array}$$

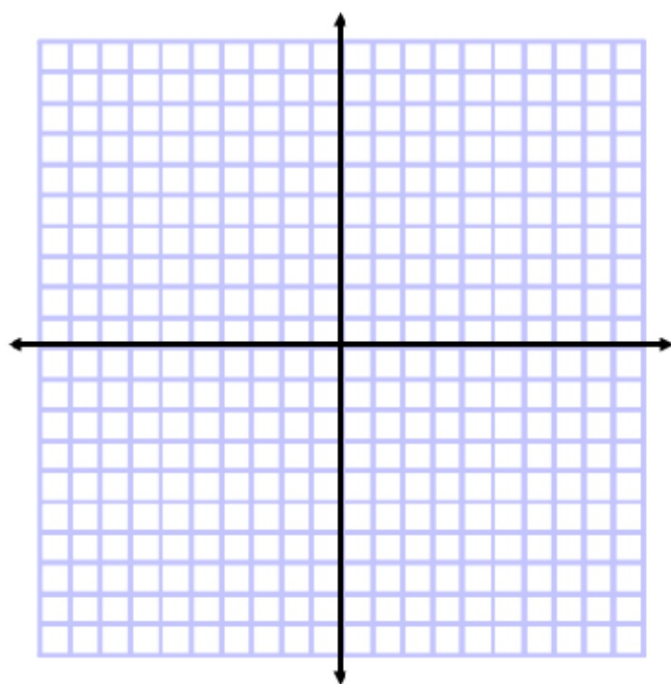


Guided Practice

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?

Guided Practice

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?

