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)

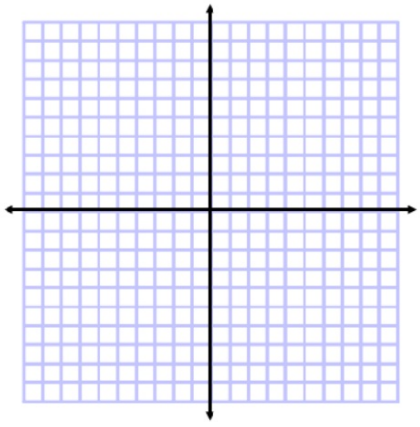
consistent

inconsistent

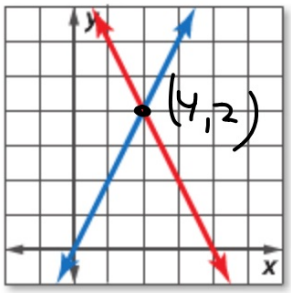
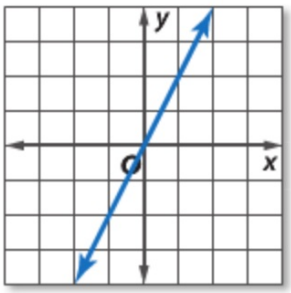
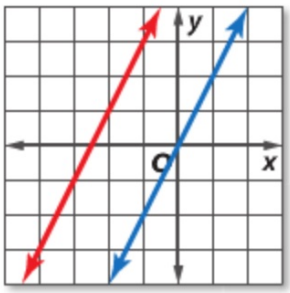
independent

dependent

graph matching: equation, table, graph



ConceptSummary Possible Solutions

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

$y = mx + b$

$x - y = 2$
$-x \quad -x$
$-y = -x + 2$

GuidedPractice

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

$-1 \quad -1 \quad -1$

2A $x - y = 2$ $\quad y = x - 2$
$3y + 2x = 9$
$-2x \quad -2x$

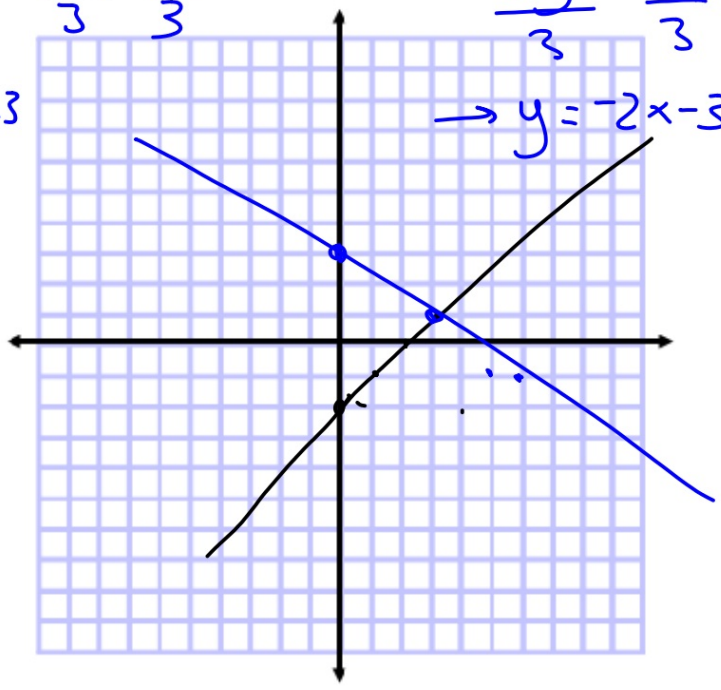
$\frac{3y}{3} = \frac{-2x}{3} + \frac{9}{3}$

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

2B $y = -2x - 3$
$6x + 3y = -9$
$-6x \quad -6x$

$\frac{3y}{3} = \frac{-6x}{3} - \frac{9}{3}$

$\rightarrow y = -2x - 3$



a. graph
b. number of solutions (one, none, inf many)
c. describe
d. what is the solution? (if any)

$y = mx + B$ (start; rate of change)

Real-World Example 3 Write and Solve a System of Equations

SPORTS The number of girls participating in high school soccer and track and field has steadily increased over the past few years. Use the information in the table to predict the approximate year when the number of girls participating in these two sports will be the same.

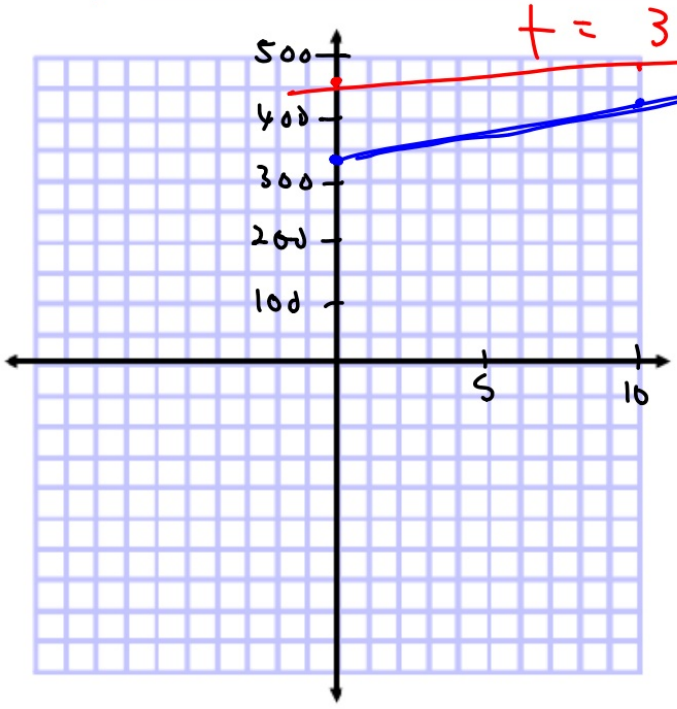
$S = 8x + 345$

High School Sport	Number of Girls Participating in 2008 (thousands)	Average rate of increase (thousands per year)
soccer	345	8
track and field	458	3

$\frac{80}{10}$ $\frac{30}{10}$

$t = 3x + 458$

2028



Start (b)
Rate of change (m)

Matching activity
1. Match each graph with its equation
Check answers

2. Match table of values with equation/graph