Algebra 2 3.1

Solve systems of linear equations graphically*

Solve systems of linear equations using tables :(

Solve systems of linear equations algebraically*

2 or more eq.

system

consistent

independent

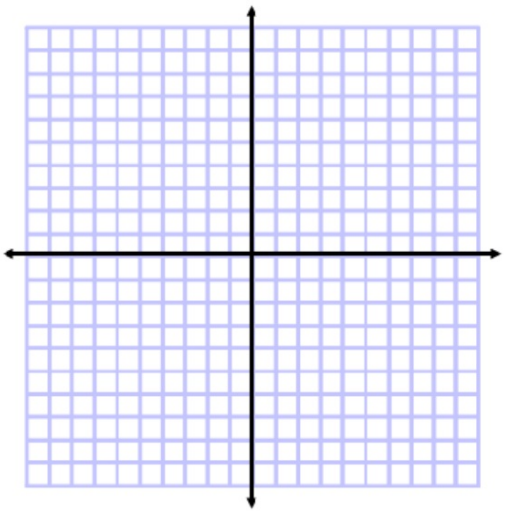
dependent

inconsistent

substitution method (cut & paste)

elimination method (make zero pairs)

whiteboards



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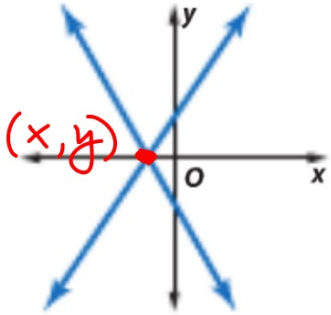
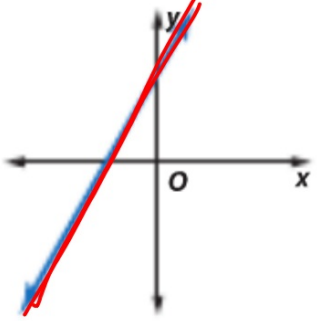
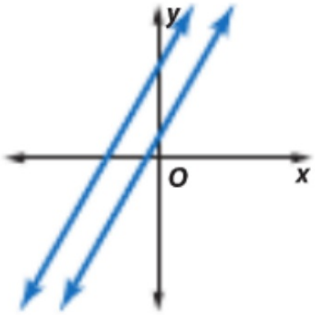
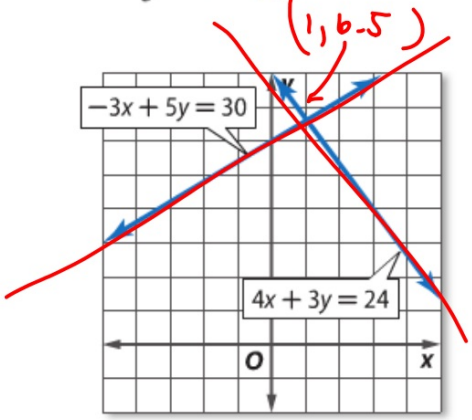
ConceptSummary Characteristics of Linear Systems

Consistent and Independent	Consistent and Dependent	Inconsistent
		
intersecting lines; one solution	same line; infinitely many solutions	parallel lines; no solution

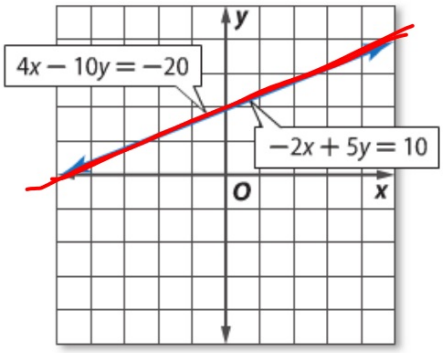
Example 3 Classify Systems

Graph each system of equations and describe them as *consistent and independent*, *consistent and dependent*, or *inconsistent*.

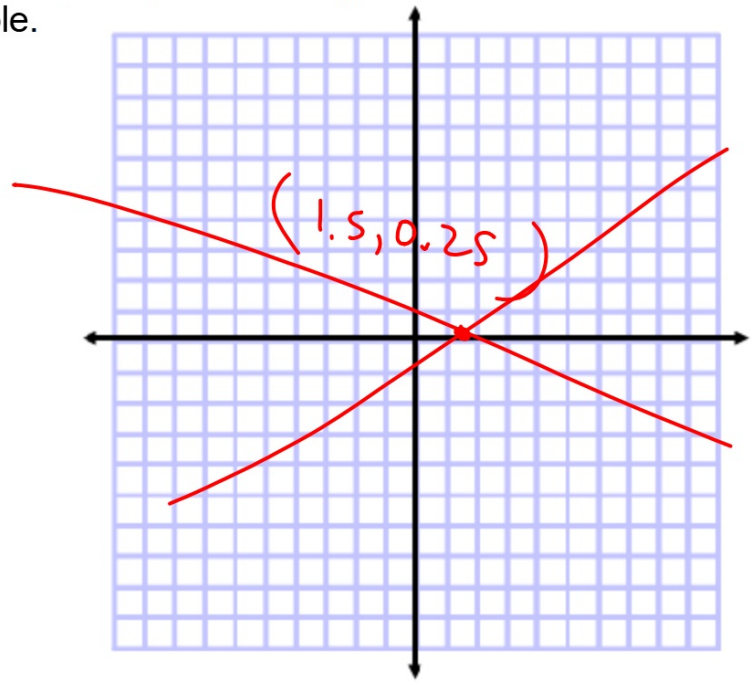
a. $4x + 3y = 24$
$-3x + 5y = 30$



b. $-2x + 5y = 10$
$4x - 10y = -20$



Where do the lines intersect? (IF they do...)
Estimate answers (ordered pairs) if necessary.
Be as precise as possible.



Example 2 Solve by Graphing

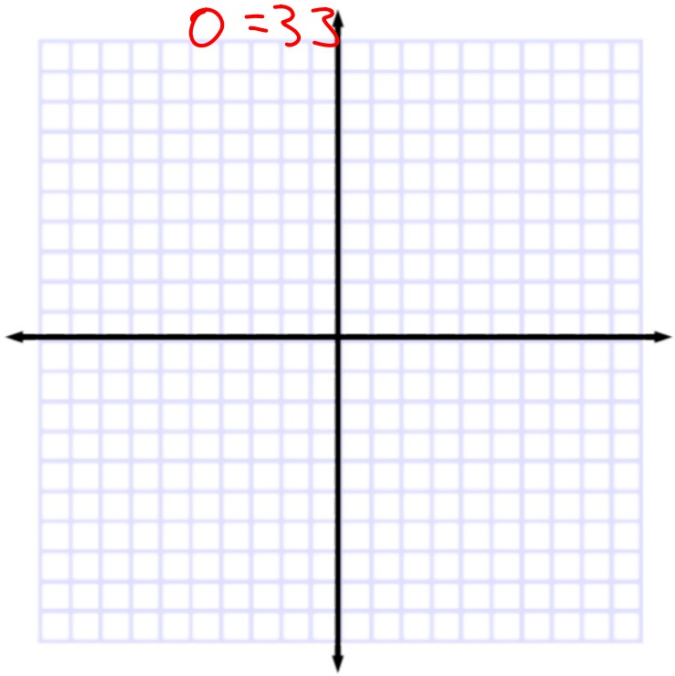
Solve the system of equations by graphing.

$2x - y = -1$ $\qquad$ $2y + 5x = -16$

GuidedPractice

3A. $6x - 4y = 15$
$-6x + 4y = 18$

$0 = 33$



Cut & Paste: review from Alg.1 Ch. 7

KeyConcept Substitution Method

Step 1 Solve one equation for one of the variables.

Step 2 Substitute the resulting expression into the other equation to replace the variable. Then solve the equation.

Step 3 Substitute to solve for the other variable.

You are the coach
The players can play either position...

cut & paste

$x =$
$y =$

$(4, -1)$
$x \quad y$

$5 \cdot 4 - 3 \cdot -1 = 23$
$20 + 3 = 23$ ☺

GuidedPractice

Use substitution to solve each system of equations.

4A. $5x - 3y = 23$
$2x + y = 7$

4B. $x - 7y = 11$
$5x + 4y = -23$

$2x + y = 7$
$-2x \quad -2x$

$y = -2x + 7$

$y = -2 \cdot 4 + 7$
$y = -8 + 7$

$5x + 3(-2x + 7) = 23$
$5x + 6x - 21 = 23$
$+21 \quad +21$
$\frac{11x}{11} = \frac{44}{11}$
$x = 4$

Review from Alg 1 Ch. 7
Elimination: form zero pairs

(2, -3)

Use elimination to solve the system of equations.

$5x + 6y = -8$
$2x + 3y = -5$ $\xrightarrow{-2}$ $-4x - 6y = 10$

$5x + 6y = -8$

$x = 2$

$2 \cdot 2 + 3y = -5$
$4 + 3y = -5$
$-4 \quad -4$
$3y = -9$

$5 \cdot 2 + 6 \cdot -3 \stackrel{?}{=} -8$
$10 + -18 = -8$ ✓

elimination: form zero pairs

1A. $6x - 2y = 10$
$3x - 7y = -19$

1B. $9r + q = 13$
$3r + 2q = -4$

(q, r)

3.1 27-57 odd

due Fri e.o.d.