CCGPS Coordinate Algebra Day 2.9 Unit 2 Solving Equations and Inequalities

Name: Key Date: _____

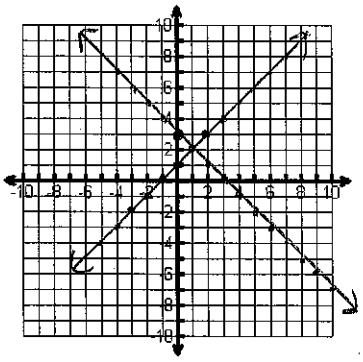
Unit 2 Test Review

Study your properties! Give an example of each of the following:

Commutative: $3 \cdot 6 = 6 \cdot 3$ Associative: $(3+6)+4 = 3+(6+4)$ Distributive: $4(x+2) = 4x+8$

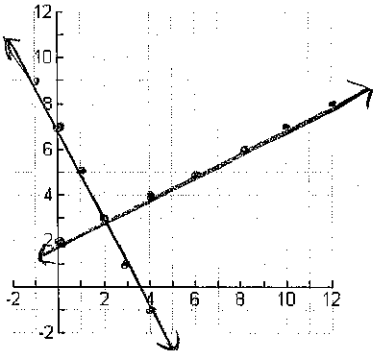
Find the solution of the linear system graphically. Write your solution in the blank provided.

(1, 2) 1. $y = -x + 3$
$y = x + 1$



(2, 3) 2. $y = -2x + 7$
$-3x + 6y = 12$

$6y = 3x + 12$
$y = \frac{1}{2}x + 2$



Use substitution to solve the linear system. SHOW ALL WORK and write your solution in the space provided.

(2, 2) 3. $y = 2x - 2$
$6x + 2y = 16$

$6x + 2(2x-2) = 16$
$6x + 4x - 4 = 16$
$10x - 4 = 16$
$10x = 20$
$x = 2$

(-2, -2) 4. $4x - y = -6$
$y = 2x + 2$

$4x - (2x+2) = -6$
$4x - 2x - 2 = -6$
$2x = -4$
$x = -2$

Use elimination to solve the linear system. SHOW ALL WORK and write your solution in the space provided.

(2, 1) 5. $5x - 3y = 7$
$x + 3y = 5$

$6x = 12$
$x = 2$

$2 + 3y = 5$
$3y = 3$
$y = 1$

(1, -2) 6. $-3x + 3y = -9$
$6x + 2y = 2$

$-6x + 6y = -18$
$8y = -16$
$y = -2$

$6x + 2(-2) = 2$
$6x - 4 = 2$
$6x = 6$
$x = 1$

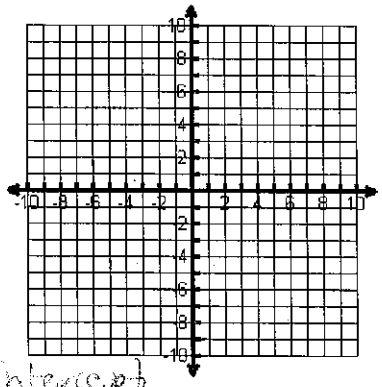
Use any method to solve the linear system. SHOW ALL WORK and write your solution in the space provided.

No Soln 7. $6x - 9y = 18$
$-3(2x - 3y = 10)$

$-6x + 9y = -30$
$0 = -12$

$-9y = -6x + 18$
$y = \frac{2}{3}x - 2$

$2x - 3y = 10$
$-3y = -2x + 10$
$y = \frac{2}{3}x - \frac{10}{3}$



same slope, different y-intercepts

Systems of Linear Equations Word Problems:

8. Bill wants to buy some CDs at the music store. Used ones sell for $4.99, and new ones sell for $13.99. He has $75 to spend that he got for his birthday.

a) Write a linear inequality to represent the situation. Can Bill by 4 used and 4 new CDs?

$4.99u + 13.99n \leq 75$ $4.99(4) + 13.99(4) = 59.92$, ~~Yes!~~ 75.92 No!

9. A store sold 32 pairs of jeans for a total of $1050. Brand A sold for $30 per pair and Brand B sold for $35 per pair. How many of Brand A were sold?

$30A + 35B = 1050$
$-30(A + B = 32)$

$30A + 35B = 1050$
$-30A - 30B = -960$
$5B = 90$
$B = 18$
$A = 14$

10. You are selling tickets for a basketball game. Student tickets cost $3 and general admission tickets cost $5. You sell 350 tickets and collect $1450. How many of each type of ticket did you sell?

$3s + 5g = 1450$
$-3(s + g = 350)$

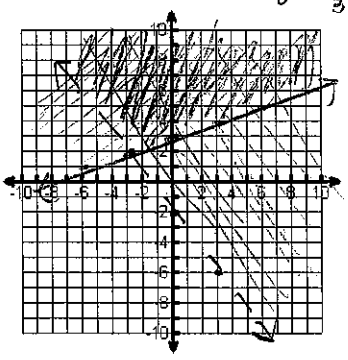
$3s + 5g = 1450$
$-3s - 3g = -1050$
$2g = 400$
$g = 200$
$s = 150$

Graph the systems of inequalities, and name a solution.

_____11. $x - 3y \leq -9$
$4x + 3y > -6$

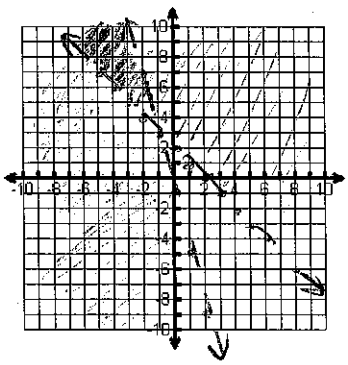
$-3y \leq -x - 9$
$y \geq \frac{1}{3}x + 3$

$3y > -4x - 6$
$y > -\frac{4}{3}x - 2$



_____12. $y > -x + 2$
$4x + y < -1$

$y < -4x - 1$



Systems of Linear Inequalities Word Problems:

13. Julia and Jackson are raising money for a Mother's Day gift. They have a lemonade stand and are selling cups of lemonade for $2 each and cookies for $1.50 each. They must raise at least $150.

a. Write an inequality to express the income from the lemonade stand.

$2L + 1.5C \geq 150$

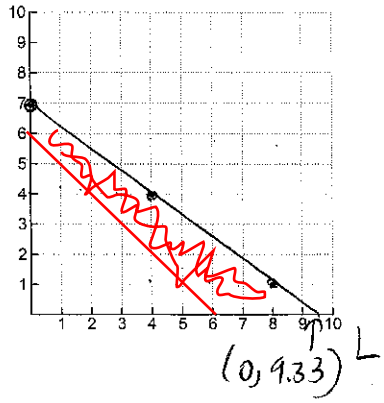
b. They expect to sell at least 3 dozen cookies. Write an inequality to represent this situation.

$C \geq 36$

14. You are looking to buy a bouquet of flowers for your favorite math teacher. Lilies cost $3.00 each and roses cost $4.00 each. You have budgeted no more than $28 to spend on flowers. Graph a system of inequalities to illustrate how many of each type of flower you can purchase if you want to buy at least half a dozen flowers. Explain how to use the graph to determine possible solutions.

$3L + 4R \leq 28$
$4R \leq -3L + 28$
$R \leq -\frac{3}{4}L + 7$

R



$x + y \geq 6$
$y \geq -x + 6$