

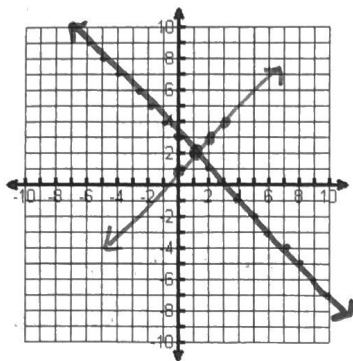
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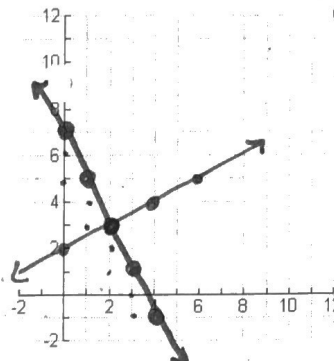
Unit 2b - Study Guide #2

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

(1, 2)<sub>1.</sub>  $y = -x + 3$   
 $y = x + 1$



(2, 3)<sub>2.</sub>  $y = -2x + 7$   
 $-3x + 6y = 12$



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

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

(2, 2)<sub>3.</sub>  $y = 2x - 2$       $6x + 2(2x - 2) = 16$   
 $6x + 2y = 16$       $6x + 4x - 4 = 16$   
 $10x = 20$   
 $x = 2$   
 $y = 2(2) - 2$   
 $y = 4 - 2$   
 $y = 2$

(-2, -2)<sub>4.</sub>  $4x - y = -6$       $x = -2$   
 $y = 2x + 2$   
 $4x - (2x + 2) = -6$       $y = -4 + 2$   
 $4x - 2x - 2 = -6$       $y = -2$   
 $2x = -4$   
 $x = -2$

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

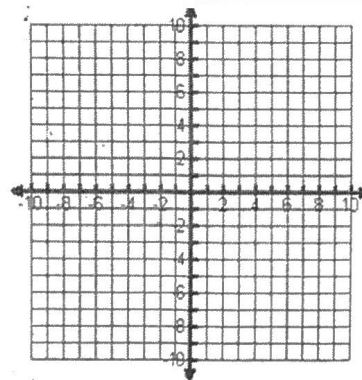
(2, 1)<sub>5.</sub>  $5x - 3y = 7$       $2 + 3y = 5$   
 $x + 3y = 5$   
 $6x = 12$   
 $x = 2$   
 $3y = 3$   
 $y = 1$

(1, -2)<sub>6.</sub>  $[-3x + 3y = -9]$       $8y = -16$   
 $[6x + 2y = 2]$       $y = -2$   
 $-6x + 6y = -18$   
 $6x + 2y = 2$       $6x - 4 = 2$   
 $6x = 6$

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

$6x - 9y = 18$       $6x - 9y = 18$   
 $-3[2x - 3y = 10]$       $-6x + 9y = -30$   
 $0 = -12$

no solutions



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.

**False  $75.92 \leq 75$**

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

$$4.99u + 13.99n \leq 75$$

$$4.99(4) + 13.99(4) \leq 75$$

$$19.96 + 55.96 \leq 75$$

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?

$$A + B = 32 \quad A = 14$$

$$30A + 35B = 1050 \quad B = 18$$

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?

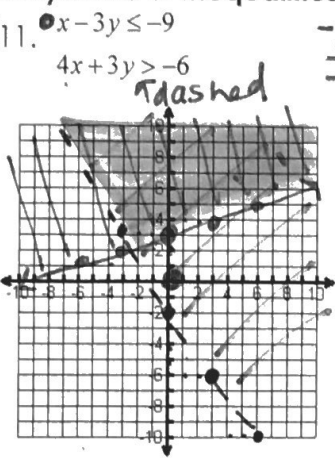
$$s = 150 \quad a = 200$$

$$3s + 5a = 1450$$

$$-3[s + a = 350]$$

Graph the systems of inequalities, and name a solution.

(2, 6)



$$x - 3y \leq -9$$

$$-3y \leq -x - 9$$

$$y \geq \frac{1}{3}x + 3$$

↑ solid  $0 \geq 3$  F

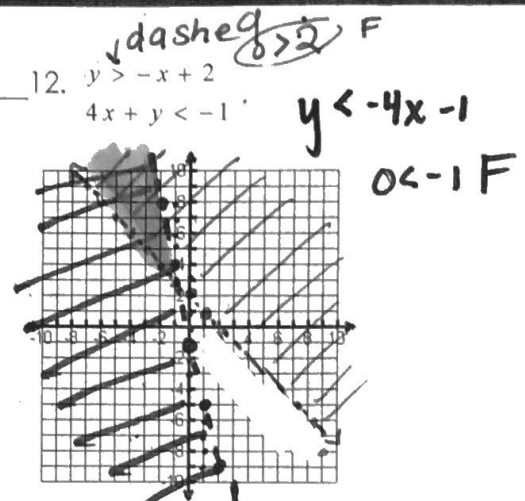
$$4x + 3y > -6$$

dashed

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

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

$$0 > -2$$



12.  $y > -x + 2$

$$4x + y < -1$$

$$y < -4x - 1$$

$$0 < -1$$
 F

**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.

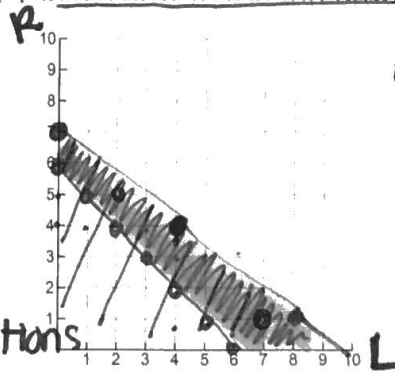
$$C \geq 36$$

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.

Money

$$3L + 4R \leq 28$$

$$L + R \geq 6$$



$$3x + 4y \leq 28$$

$$4y \leq -3x + 28$$

$$y \leq -\frac{3}{4}x + 7$$

$$0 \leq 7$$
 True

$$x + y \geq 6$$

$$y \geq -x + 6$$

$$0 \geq 6$$
 False

The shaded section shows possible combinations of Roses & Lillies that satisfy the inequality  $\rightarrow (7, 1) (2, 5) (4, 4)$