

Unit 2B Systems of Equations

Test Review

This review has over 100 questions.

You may need extra notebook paper to complete this problems neatly.

This review is Due Monday 9/9.

How to Review:

1. Put away all notes and work on the problems you know how to do immediately
2. Take out notes to help you with the ones you do not know.
3. CHECK your answers on the board or on the blog
 - a. What does Ms. Walsh mean by check?
 - i. Look to see if your answer matches
 - ii. If it doesn't, mark it wrong
 - iii. After reviewing all answers sit down WITHOUT my key and try those problems again
 - iv. Check again
 - v. If you are still getting problems wrong, then you should come in for tutoring.
 - vi. NO ONE SHOULD HAVE A PERFECT PAPER. I should see erase marks, mini reminders to yourself and effort :)

Yes, this review has a ton of problems. The more you practice the more confident you should feel on Monday. You have all of class on Friday (maybe Thursday) and all weekend to study!

Tutoring:

Monday 9/9 at 7:15 am

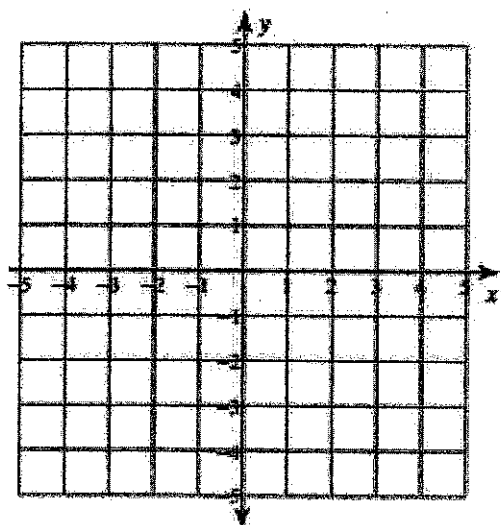
All weekend on the Remind App – still haven't joined??? text @33d46b to the number 81010

Unit Review

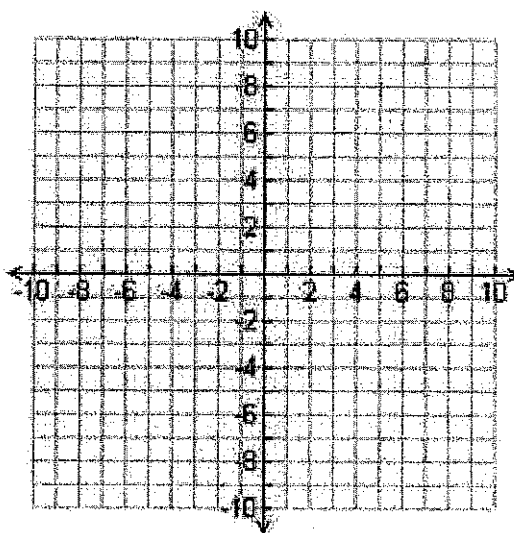
Solve system of linear equations by graphing.

$$y = -\frac{5}{3}x + 3$$

$$y = \frac{1}{3}x - 3$$



$$\begin{aligned} -2x - 5y &= -10 \\ 3x + 6y &= 18 \end{aligned}$$



Solve system of linear equations by substitution.

$$\begin{aligned} -3x - 3y &= 3 \\ y &= -5x - 17 \end{aligned}$$

Solve system of linear equations by elimination.

$$\begin{aligned} x - y &= 11 \\ 2x + y &= 19 \end{aligned}$$

$$\begin{aligned} y &= -3x + 5 \\ 5x - 4y &= -3 \end{aligned}$$

$$\begin{aligned} -4x + 9y &= 9 \\ x - 3y &= -6 \end{aligned}$$

Linear Systems Word Problems

1. A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple choice questions worth 11 points each. How many multiple choice questions are on the test?

Equation 1: _____

Equation 2: _____

Solution: _____

2. The difference of two numbers is 3. Their sum is 13. What are the two numbers?

Equation 1: _____

Equation 2: _____

Solution: _____

3. The admission fee at a small fair is \$1.50 for children and \$4.00 for adults. On a certain day, 2200 people enter the fair and \$5050 is collected. How many children and how many adults attended?

Equation 1: _____

Equation 2: _____

Solution: _____

4. At an ice cream parlor, ice cream cones cost \$1.10 and sundaes cost \$2.35. One day, the receipts for a total of 172 cones and sundaes were \$294.20. How many cones were sold?

Equation 1: _____

Equation 2: _____

Solution: _____

5. Lisa goes to the mall one day and buys four shirts and three pairs of pants for \$85.50. She returns the next day and buys three shirts and five pairs of pants for \$115.00. What is the price of each shirt and each pair of pants?

Equation 1: _____

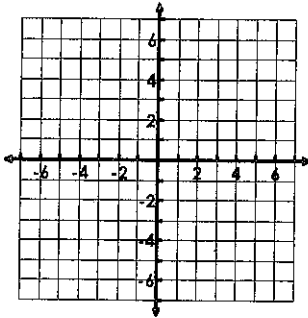
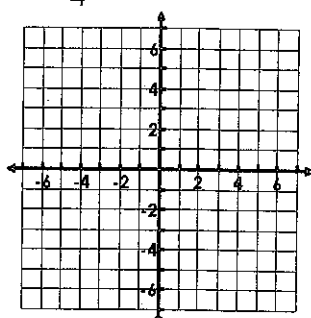
Equation 2: _____

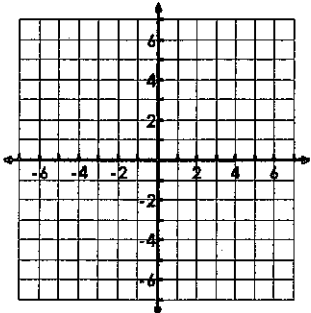
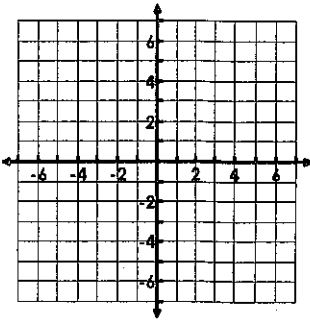
Solution: _____

Name: _____

Date: _____

Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.

What you need to know & be able to do	Things to remember	Problem	Problem
Check to see if an ordered pair is a solution to a system of linear equations.	Plug into both equations	1. $(1, -2) \begin{cases} 2x + y = 0 \\ x + 4y = -7 \end{cases}$	2. $(-6, -2) \begin{cases} 2x - y = -10 \\ -x + y = 4 \end{cases}$
Find the solution of a system of linear equations by <u>graphing</u> .	<ul style="list-style-type: none"> • Get "y" by itself. • Identify the slope (m) and the y-int (b) • $y = mx + b$ • Check your answer! 	3. $y = -x - 2$ $x + y = 3$ 	4. $y = x + 2$ $y = \frac{1}{4}x - 1$ 
Find the solution of a system of linear equations by <u>substitution</u> .	<ul style="list-style-type: none"> • Solve one of the equations for a variable (either x or y). • Substitute into the other equation. • Plug back into the ORIGINAL! • Check your answer! 	5. $-7x + 8y = 6$ $x + 4y = -6$	6. $8x + 2y = 16$ $x - y = 7$
Find the solution of a system of linear equations by <u>elimination</u> .	<ul style="list-style-type: none"> • Decide which variable you want to get rid of. • Make sure the coefficients are opposite • Add the two equations. • Solve for the variable. • Substitute back into the original. • Check your answer! 	7. $12x - 8y = 12$ $6x - 7y = -12$	8. $-2x - 7y = 6$ $-x - 3y = 3$

Find the solution of a system of linear equations by the best method .	<ul style="list-style-type: none"> • Check if a pair is already opposite for elimination. • Check to see if either equation is already solved for a variable for substitution. • Check to see if the equations are already in slope-intercept form. 	9. $-3x + y = 17$ $8x + 7y = 3$	10. $3x - 3y = -3$ $-5x + 9y = 29$
Different types of solutions	<ul style="list-style-type: none"> • Define x and y. • Set up two equations. • Decide the best method. • Solve. 	11. List the different types of solutions a system of equations.	12. Explain what the graphs look like for each type of solution. -Explain what each solution looks like when you solve a system of equations.
Graphing a system of linear inequalities.	<ul style="list-style-type: none"> • Make sure both equations are in slope-intercept form. • Decide if the lines will be solid or dashed. • Graph the lines. • Test a point-typically (0,0). • Shade appropriately. 	13. $y > -2x - 3$ $y \leq \frac{1}{2}x + 2$ 	14. $y \leq x + 1$ $y < -x - 3$ 
Determine solutions to systems of linear inequalities	<ul style="list-style-type: none"> • Look at the graph (the shaded region) 	15. Is (0, 1) a solution to #13? Is (-1, -1) a solution to #13? Is (-2, 3) a solution to #13? Is (-5, -5) a solution to #13?	16. Is (1, 2) a solution to #14? Is (-2, -4) a solution to #14? Is (-3, 0) a solution to #14? Is (3, 1) a solution to #14?

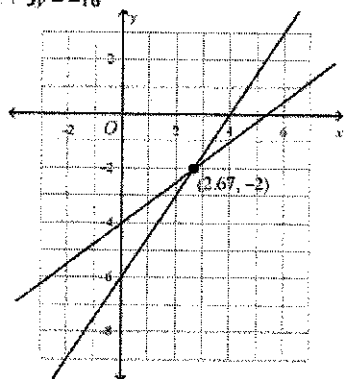
Graphing Linear Systems Practice

1. Solve the following system of equations by graphing.

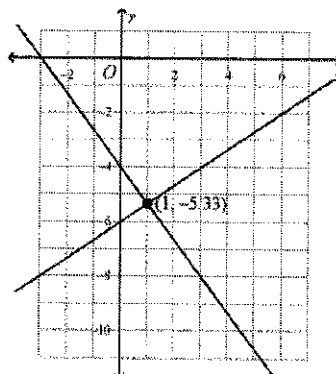
$$-4x + 3y = -12$$

$$-2x + 3y = -18$$

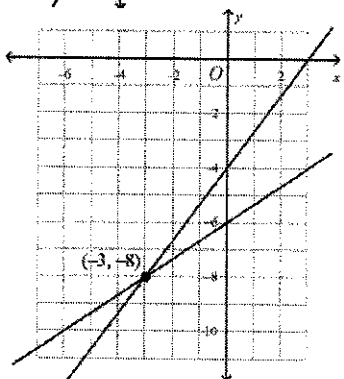
a.



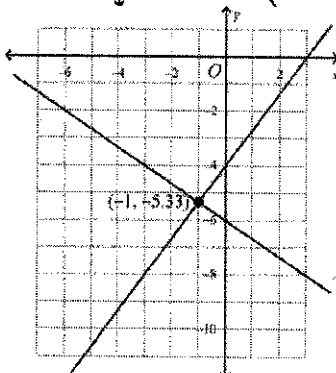
c.



b.



d.



- 2.

Which linear system is represented by this graph?

a) $x - y = 2$

$5x + 7y = 17$

b) $x - y = 4$

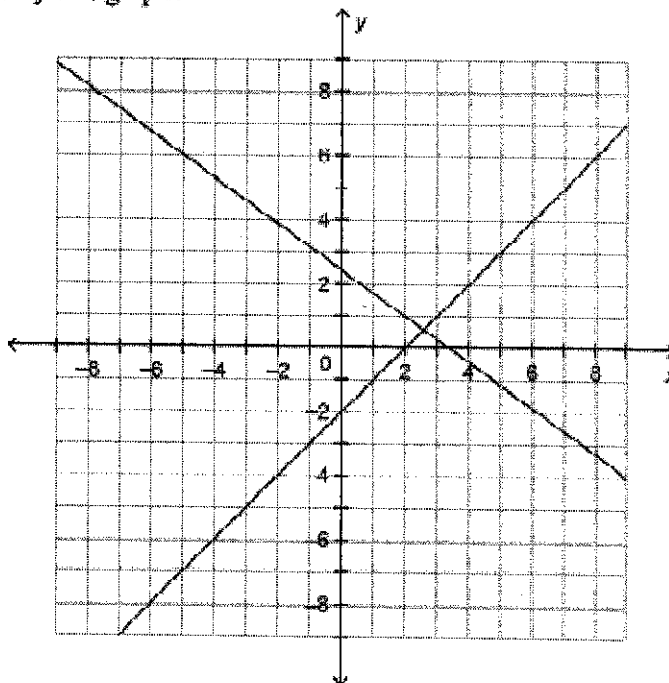
$5x + 7y = 17$

c) $x - y = 6$

$6x + 7y = 17$

d) $x - y = 8$

$7x + 5y = 17$



Graphing Linear Systems Practice

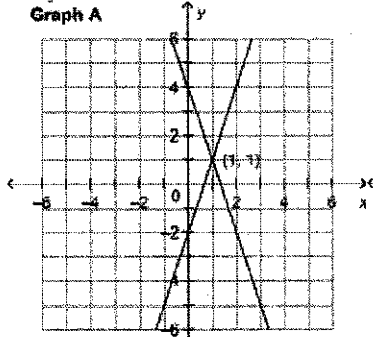
3.

Which graph represents the solution of the linear system:

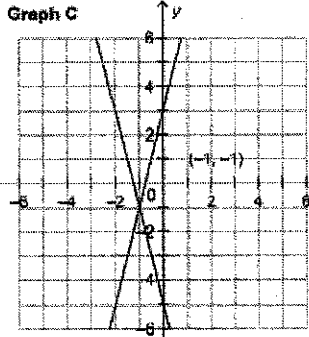
$$-3x - y = -4$$

$$3x - y = 2$$

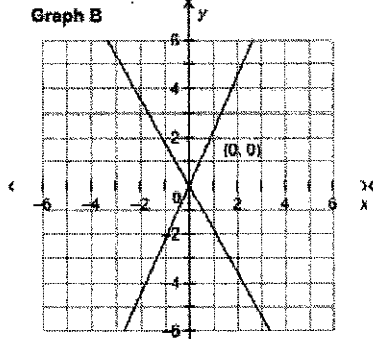
Graph A



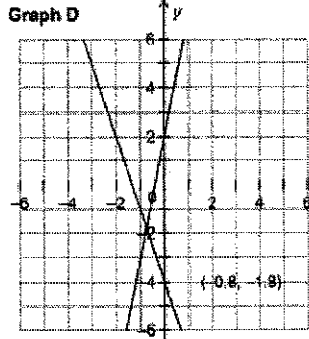
Graph C



Graph B



Graph D



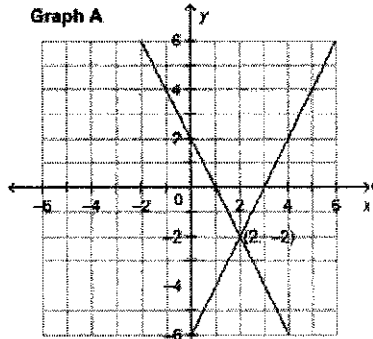
4.

Which graph represents the solution of the linear system:

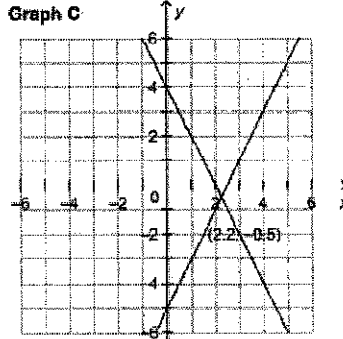
$$y = -2x + 2$$

$$y + 6 = 2x$$

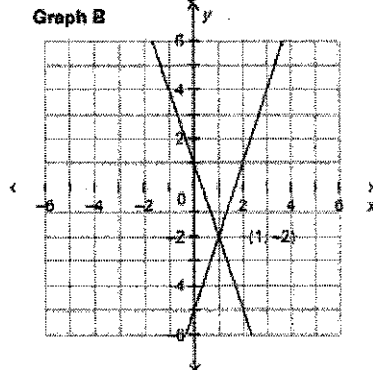
Graph A



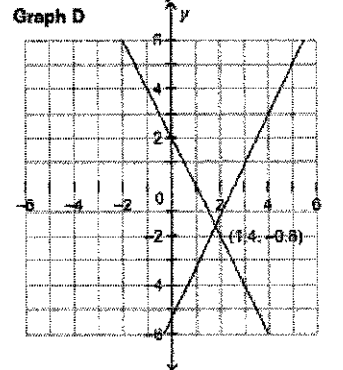
Graph C



Graph B



Graph D



Word Problems Practice

Date _____ Period _____

- 1) Dan's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 6 adult tickets and 2 student tickets for a total of \$90. The school took in \$108 on the second day by selling 3 adult tickets and 8 student tickets. Find the price of an adult ticket and the price of a student ticket.
- A) adult ticket: \$12, student ticket: \$9 B) adult ticket: \$14, student ticket: \$11
C) adult ticket: \$15, student ticket: \$6 D) adult ticket: \$5, student ticket: \$13
- 2) Ming and Danielle are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of holiday wrapping paper. Ming sold 8 rolls of plain wrapping paper and 5 rolls of holiday wrapping paper for a total of \$170. Danielle sold 4 rolls of plain wrapping paper and 10 rolls of holiday wrapping paper for a total of \$220. What is the cost each of one roll of plain wrapping paper and one roll of holiday wrapping paper?
- A) roll of plain wrapping paper: \$15, roll of holiday wrapping paper: \$20
B) roll of plain wrapping paper: \$14, roll of holiday wrapping paper: \$22
C) roll of plain wrapping paper: \$10, roll of holiday wrapping paper: \$18
D) roll of plain wrapping paper: \$5, roll of holiday wrapping paper: \$26
- 3) Perry and Julia are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Perry sold 5 small boxes of oranges and 5 large boxes of oranges for a total of \$175. Julia sold 6 small boxes of oranges and 10 large boxes of oranges for a total of \$290. Find the cost each of one small box of oranges and one large box of oranges.
- A) small box of oranges: \$20, large box of oranges: \$26
B) small box of oranges: \$15, large box of oranges: \$20
C) small box of oranges: \$20, large box of oranges: \$15
D) small box of oranges: \$11, large box of oranges: \$28
- 4) The school that Jacob goes to is selling tickets to a play. On the first day of ticket sales the school sold 5 senior citizen tickets and 3 student tickets for a total of \$59. The school took in \$144 on the second day by selling 10 senior citizen tickets and 8 student tickets. Find the price of a senior citizen ticket and the price of a student ticket.
- A) senior citizen ticket: \$3, student ticket: \$18
B) senior citizen ticket: \$4, student ticket: \$13
C) senior citizen ticket: \$13, student ticket: \$4
D) senior citizen ticket: \$5, student ticket: \$18

Elimination Practice

Date _____ Period _____

Solve each system by elimination.

1) $-16x + 10y = 30$
 $8x + 9y = 27$

2) $-7x + 3y = -30$
 $8x - y = 10$

3) $-4x - 7y = -24$
 $7x + 4y = -24$

4) $-3x + 9y = -3$
 $-4x - 5y = 13$

Use elimination to find the x-coordinate of the solution to each system.

5) $40x - 20y = -18$
 $60x - 30y = -30$

- A) 5
B) No solution
C) -5
D) Infinite number of solutions

6) $-8x - 3y = -3$
 $-3x + 8y = 8$

- A) No solution
B) 0
C) -1
D) 1

7) $-2x + 9y = 14$
 $-3x - 8y = -22$

- A) -2
B) Infinite number of solutions
C) -9
D) 2

8) $-3x - 10y = -8$
 $-7x - 3y = 22$

- A) 4
B) Infinite number of solutions
C) 5
D) -4

Solve each system by elimination.

9) $6x + 2y = -30$
 $9x + 5y = -27$

- A) $(-6, 9)$
B) $(-8, 9)$
C) $(9, -8)$
D) $(-8, -9)$

10) $-3x - 4y = -4$
 $7x + 6y = -14$

- A) $(8, 7)$
B) $(-8, 7)$
C) $(-8, -8)$
D) $(-8, 8)$

Substitution Practice

Date _____ Period _____

Solve each system by substitution.

1) $x - 4y = -17$
 $3x - 2y = -1$

2) $x + 4y = 4$
 $-5x - 2y = 16$

3) $y = -3x + 1$
 $4x + 3y = -12$

4) $y = 6x - 17$
 $-5x - 2y = 0$

Use substitution to find the x-coordinate of the solution to each system.

5) $y = 8x - 4$
 $-2x + 2y = -8$
A) -1 B) -7
C) 0 D) 1

6) $y = 4x + 18$
 $12x - 3y = -54$
A) Infinite number of solutions
B) -7
C) No solution
D) 7

Solve each system by substitution.

7) $y = -8x - 4$
 $-4x - 5y = -16$
A) (-1, 3) B) (-1, 4)
C) (-1, -3) D) (1, 3)

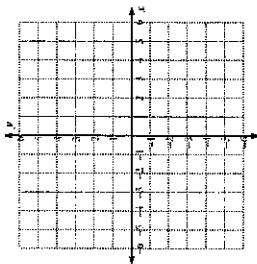
8) $y = -7x + 5$
 $21x + 3y = 6$
A) No solution B) (7, 2)
C) (-2, 2) D) (-2, -2)

9) $y = -2x$
 $6x + 6y = 18$
A) (-3, 6)
B) Infinite number of solutions
C) (2, -3)
D) (-3, -2)

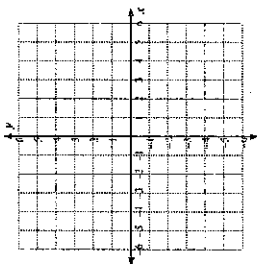
10) $y = 4x + 8$
 $5x + 2y = 3$
A) Infinite number of solutions
B) (-1, 3)
C) (-1, 4)
D) (-1, -3)

Sketch the graph of each linear inequality.

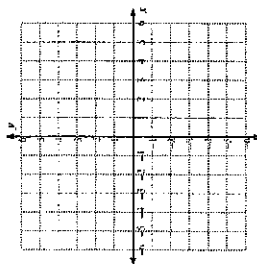
1) $y < \frac{6}{5}x - 3$



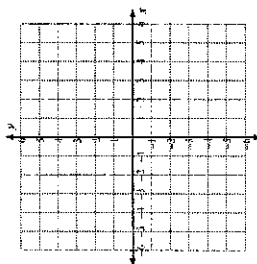
2) $y \geq -2x - 5$



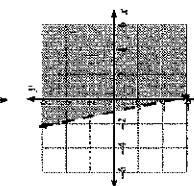
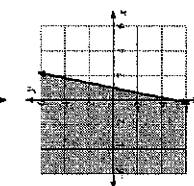
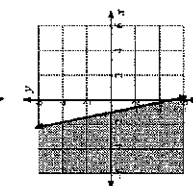
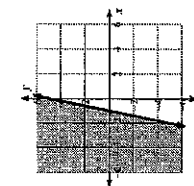
3) $3x - 2y < 10$



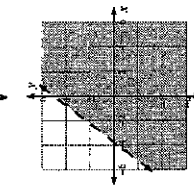
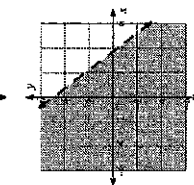
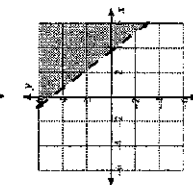
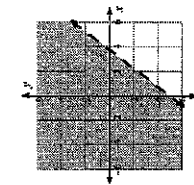
4) $x - y > -2$



5) $5x + y > -5$

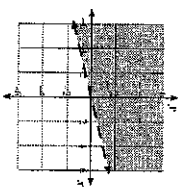


6) $4x + 3y < 15$

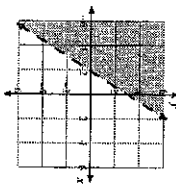


7) $8x - 5y < -15$

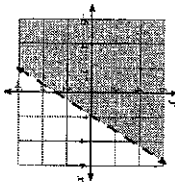
A)



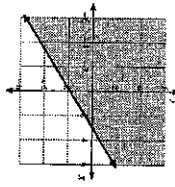
B)



C)

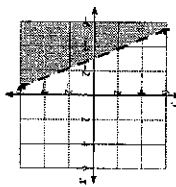


D)

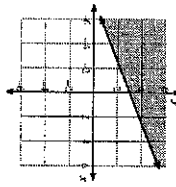


8) $y \geq \frac{2}{5}x + 3$

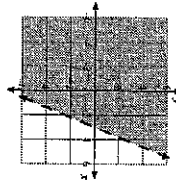
A)



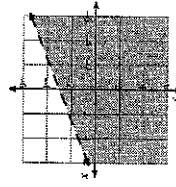
B)



C)

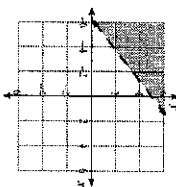


D)

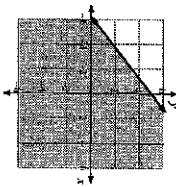


9) $y \leq \frac{4}{5}x + 5$

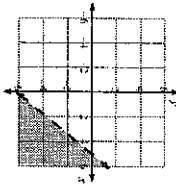
A)



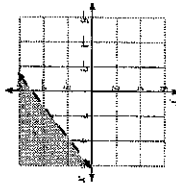
B)



C)

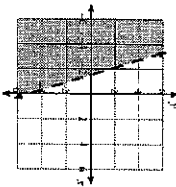


D)

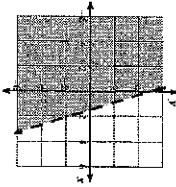


10) $y < -\frac{10}{3}x + 5$

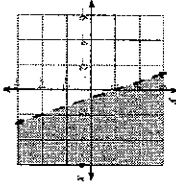
A)



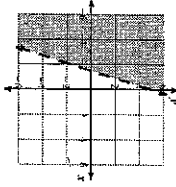
B)



C)

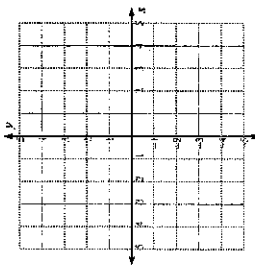


D)

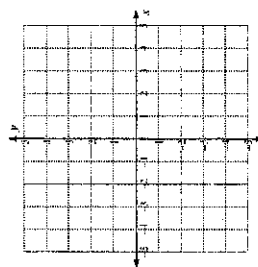


Sketch the solution to each system of inequalities.

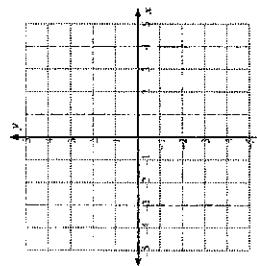
1) $y \leq -x - 2$
 $y \leq -4x + 1$



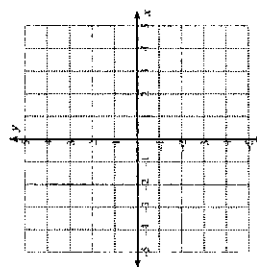
2) $y > -\frac{1}{3}x + 2$
 $y > -\frac{4}{3}x - 1$



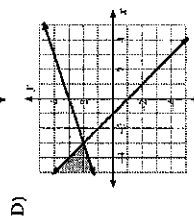
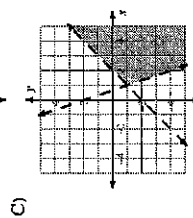
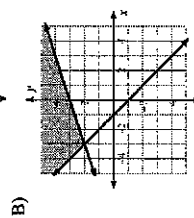
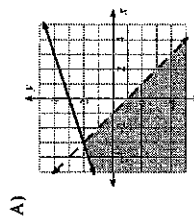
3) $x - y < -2$
 $6x - y < 3$



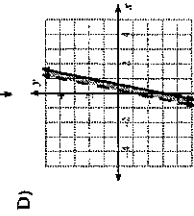
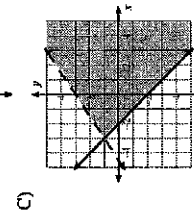
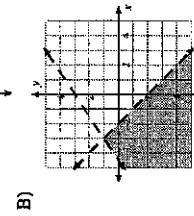
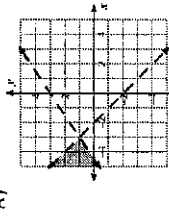
4) $x - 2y \leq -4$
 $2x - y > 1$



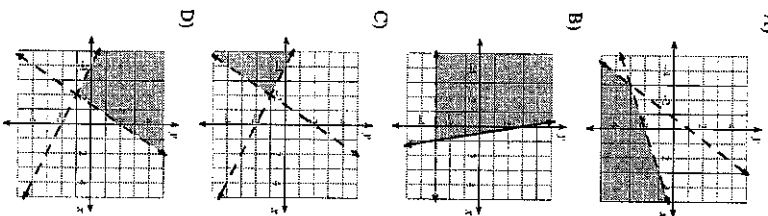
5) $y \leq -x - 1$
 $y \geq \frac{1}{3}x + 3$



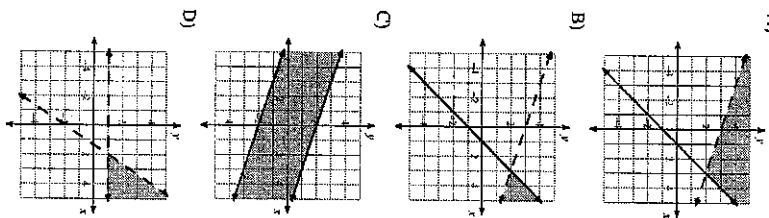
6) $y \geq 5x - 3$
 $y < 5x - 1$



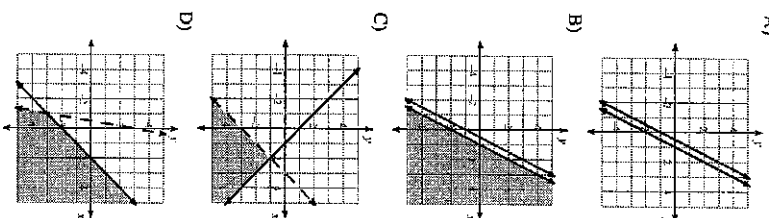
7) $y > \frac{3}{2}x + 2$
 $y > -\frac{1}{2}x - 2$



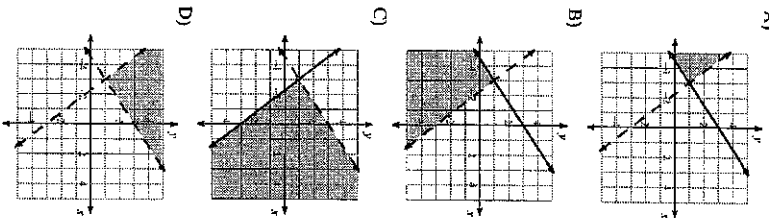
8) $x + 3y \leq 6$
 $x + 3y \geq -6$



9) $x - y > 3$
 $x + y \leq 1$



10) $2x - 3y < -9$
 $4x + 3y > -9$



Did You Hear About...

A	B	C	D	E	F
G	H	I	J	K	L

Solve each system of equations below using multiplication with the addition method. Find the solution in the answer column and notice the word next to it. Write this word in the box containing the letter of that exercise. Keep working and you will hear about some "udder" nonsense.

* Solve using the best method

(A) $5x - 2y = 4$
 $3x + y = 9$

(G) $3x - 5y = 7$
 $5x - 2y = -1$

(B) $3x - 5y = 13$
 $x - 2y = 5$

(H) $4x + 3y = 9$
 $3x + 4y = 12$

(C) $7x + 2y = -1$
 $3x - 4y = 19$

(I) $5x - 3y = 16$
 $4x + 5y = -2$

(D) $x + 2y = 6$
 $5x + 3y = 2$

(J) $4x - 3y = -20$
 $-x - 8y = 5$

(E) $2x + 3y = 7$
 $3x + 4y = 10$

(K) $-3x + 7y = -1$
 $-2x + 5y = 0$

(F) $7x - 3y = -5$
 $3x + 2y = 11$

(L) $5x + 6y = -11$
 $3x + y = -4$

TWEET	(1, 2)
HIS	(2, 1)
SELLING	(-5, 0)
BIRDSEED	(-1, -2)
UDDER	(2, 0)
THE	(2, 3)
SINGING	(-5, 4)
STARTED	(2, -2)
FED	(-2, 4)
BUTTER	(-1, 3)
COWS	(1, 4)
MILK	(-1, -1)
FARMER	(1, -2)
AND	(0, 3)
WINGS	(2, -4)
WHO	(1, -4)
MOO	(1, 3)
CHEEP	(5, 2)
BEEF	(3, -2)

Name: _____

Date: _____ Class: _____

Writing Systems from Word Problems Practice

1. A sporting good store sells right-handed and left-handed baseball gloves. In one month, 12 gloves were sold for a total revenue of \$528. Right-handed gloves cost \$48 and left-handed gloves cost \$36. How many of each type of glove was sold.

2. For a community bake sale, you purchases 12 pounds of sugar and 15 pounds of flour. Your total cost was \$9.30. The next day, you purchased 4 pounds of sugar and 10 pounds of flour. Your total cost the second day was \$4.60. Find the cost of a pound of sugar and a pound of flour.

3. Radio Tower had a special on rechargeable batteries. It sold AA for \$1 and AAA for \$0.75. It sold 42 batteries on a single day and received \$37. How many batteries and of which type were sold?

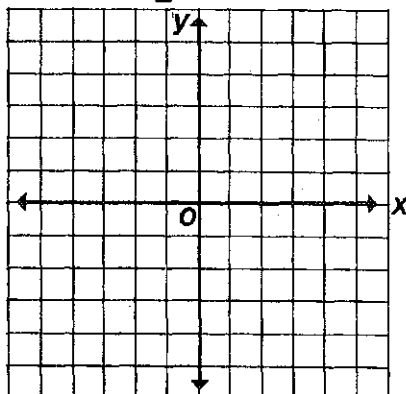
4. Elisa and Stefan each improved their yards by planting daylilies and ivy. They bought their supplies from the same store. Elisa spent \$96 on 14 daylilies and 3 pots of ivy. Stefan spent \$104 on 16 daylilies and 2 pots of ivy. Find the cost of one daylily and the cost of one pot of ivy.

5. The sum of two numbers is 47, and their difference is 15. What is the value of the smaller and larger number?

Why Did the Three Pigs Leave Home?

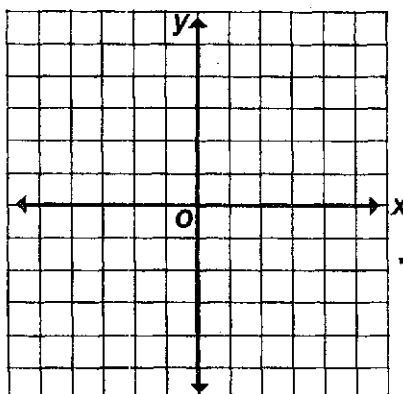
Graph each inequality below. Circle the letter of the statement that correctly describes the location of the graph. Print this letter in each box at the bottom of page 31 that contains the number of the exercise.

① $y \geq \frac{1}{2}x - 3$



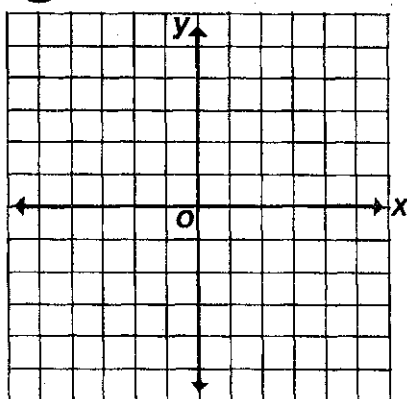
- D Quadrants I, II, IV; includes boundary line.
- E All four quadrants; includes boundary line.
- I Quadrants I, III, IV; excludes boundary line.

② $x + y > 1$



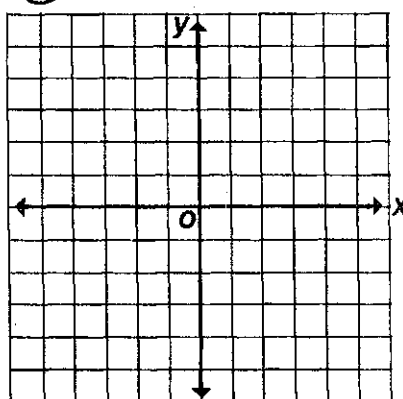
- S Quadrants I, II, IV; excludes boundary line.
- B All four quadrants; includes boundary line.
- F Quadrants I, III, IV; excludes boundary line.

③ $y \leq 2x - 2$



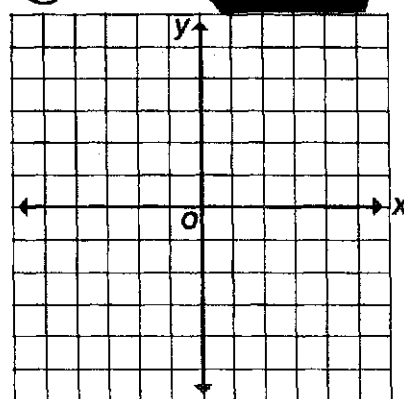
- L Quadrants I, II, IV; includes boundary line.
- T Quadrants I, III, IV; includes boundary line.
- V All four quadrants; excludes boundary line.

④ $3x + 2y < 6$

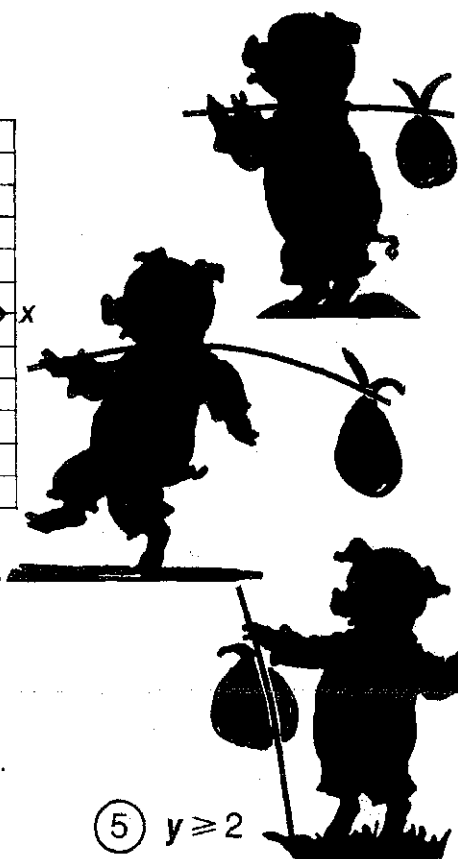


- C Quadrants II, III, IV; excludes boundary line.
- M Quadrants I, II, IV; includes boundary line.
- O All four quadrants; excludes boundary line.

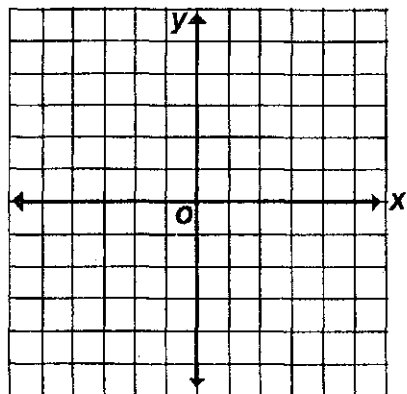
⑤ $y \geq 2$



- R All four quadrants; excludes boundary line.
- U Quadrants II, III; includes boundary line.
- H Quadrants I, II; includes boundary line.



⑥ $x < -3$

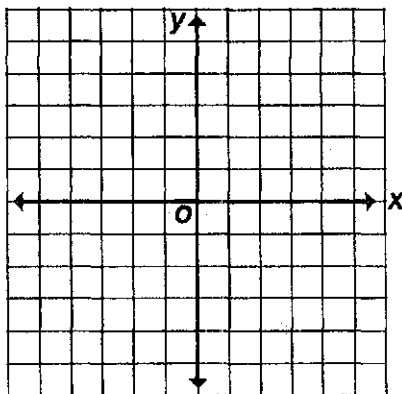


L Quadrants I, II;
excludes boundary line.

W Quadrants II, III;
excludes boundary line.

G Quadrants I, III;
excludes boundary line.

⑦ $2x - 3y \leq 12$

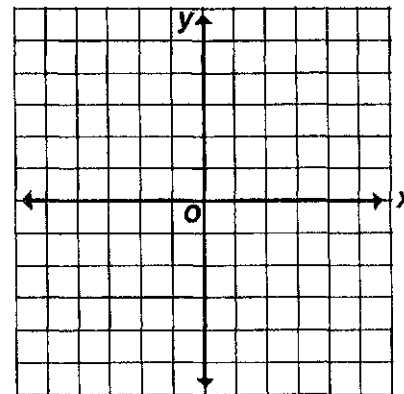


K Quadrants I, III, IV;
excludes boundary line.

U Quadrants II, III, IV;
includes boundary line.

I All four quadrants;
includes boundary line.

⑧ $5x + 3y < x + 6$

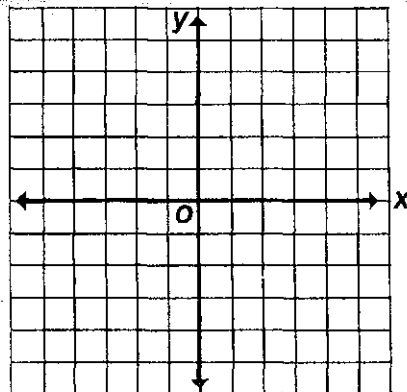


F All four quadrants;
excludes boundary line.

P Quadrants I, II, III;
excludes boundary line.

M Quadrants I, III, IV;
excludes boundary line.

⑨ $3x + y > 0$

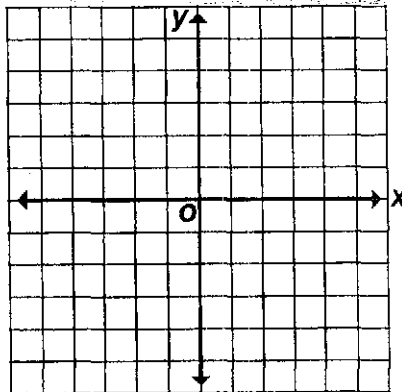


R Quadrants I, II, IV;
excludes boundary line.

L All four quadrants;
includes boundary line.

M Quadrants I, III, IV;
excludes boundary line.

⑩ $2(x - y) \geq 5$

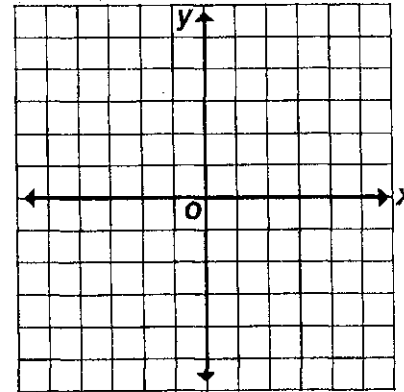


Y All four quadrants;
excludes boundary line.

U Quadrants II, III, IV;
includes boundary line.

A Quadrants I, III, IV;
includes boundary line.

⑪ $5y - 2 \geq 3x - 7$



N Quadrants I, III, IV;
excludes boundary line.

B All four quadrants;
includes boundary line.

D Quadrants I, II, IV;
includes boundary line.

3	5	1	7	9	8	10	3	5	1	9	6	10	2	10	11	4	10	9
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