Math 8 – Advanced/Algebra 1

Mrs. Long – 3rd period only

All of you told me Friday that you can access everything online, so check Livegrades for updates to this plan. If your status has changed, please let me know by email (along@k12.wv.us) or call the school and ask for me so that I can make other arrangements with you for the quizzes.

I will be assigning mostly odd numbered problems from this point so that you can check yourself in the back of the book. Please do not cheat yourself out of learning by relying on looking up the answer. If you did not take your book home as I instructed you to do so on Friday, you can access it online through Clever.com. Click on the "Big Ideas Math" link and choose your book. The e-book choice on the right-hand column is the easiest to use. You can also message or call me and I will meet you outside the school with your book if you give me permission to get in your locker. You could also have one of your classmates text you pictures of the pages in a pinch.

Work on ALEKS at least 2 hours a week. Don't forget that it has words in blue that you can click on for definitions, it has worked out examples and explanations. You can pick topics on the same standard as your assignment and learn how to do it/get help. There are also several tutorial videos that you can watch on there.

I will be at my computer most of the day. Send me livegrades messages or emails and I will try to help you. Don't forget to try other methods to get help. You can ask each other, ask older siblings or relatives, go to Khan Academy website where you can see a teacher teach just about any math topic and work out examples. Mathsisfun.com has good vocabulary and examples for your age, and you can always google it!

Monday, March 16 – Finish work on p.239, p.245, p.251, p.257 if needed & ½ h on Aleks
Tuesday, March 17 – Check above pages via email I sent. Do ALEKS assignments on "Solving Systems of Equations".
Wednesday, March 18 – Read Lesson 4.7 page 221 only; Read notes on Absolute Value Functions – these were sent in a livegrades message and are in the packet if you got a hard copy; Do p.223 (37-42).
Thursday, March 19 – Read Lesson 5.5; Do p.265 (3-39odd)(31,38,39)
Friday, March 20 – Take Quiz on ALEKS on Solving Systems of Equations. (It will be like the assignment from Tuesday.

*Check on Livegrades for your scores on the Chapter 4 Test you took last week. If you did not finish it, I will just grade the part you had finished. I will make a practice for a re-test on it on ALEKS by Monday for those who want to re-test. The re-test will have to be on ALEKS as well.

Monday, March 23 – Read Lesson 5.6; Do p.271 (3-37odd); You will need graph paper – print some off, draw it, use old graph paper with different color pencils, use the back side, etc
Tuesday, March 24 – Read Lesson 5.7; Do p.278 (3-31odd).
Wednesday, March 25 – Practice Assignment & Quiz on Inequalities on ALEKS
Thursday, March 26 – Read Lesson 6.1; Do p.296 (5-53odd)
Friday, March 27 – Read Lesson 6.2; Do p.303 (3-6)(7-33odd)(41,45,46)

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Solving Systems of Equations #1

Class Name : **Algebra 1 - 8th grade**

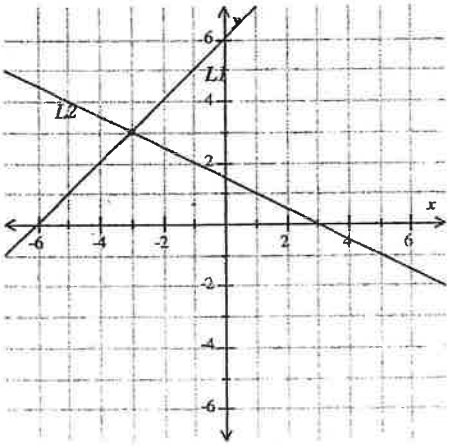
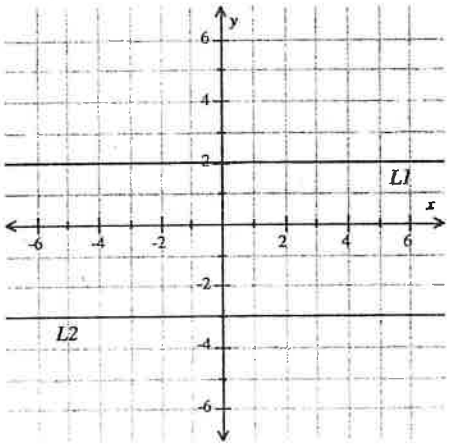
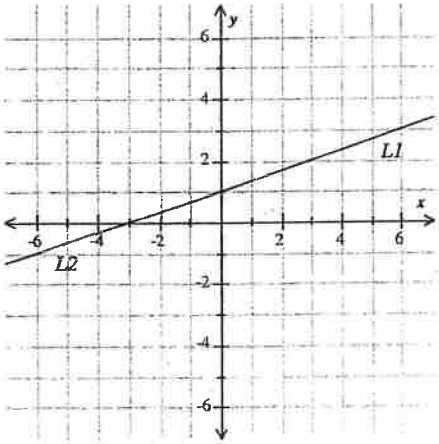
Student Name : _____

Instructor Name : **Mrs. Long**

Instructor Note : **Tuesday, March 17 This assignment may also be completed online on ALEKS.**

Question 1 of 12

Three systems of linear equations are shown.
For each system, choose the best description of its solution.
If the system has exactly one solution, give its solution.

System A	System B	System C
Line 1: $y=x+6$	Line 1: $y=2$	Line 1: $y=\frac{1}{3}x+1$
Line 2: $y=-\frac{1}{2}x+\frac{3}{2}$	Line 2: $y=-3$	Line 2: $-x+3y=3$
		
○ The system has exactly one solution. Solution: (___, ___) ○ The system has infinitely many solutions. ○ The system has no solution.	○ The system has exactly one solution. Solution: (___, ___) ○ The system has infinitely many solutions. ○ The system has no solution.	○ The system has exactly one solution. Solution: (___, ___) ○ The system has infinitely many solutions. ○ The system has no solution.

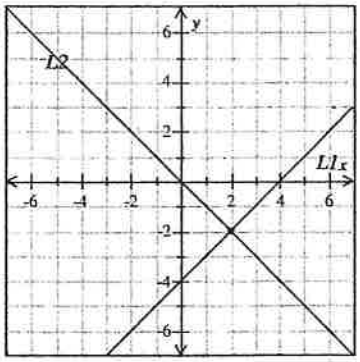
Question 2 of 12

For each system of linear equations shown below, classify the system as "consistent dependent," "consistent independent," or "inconsistent." Then, choose the best description of its solution. If the system has exactly one solution, give its solution.

System A

L1: $y = x - 4$

L2: $y = -x$



This system of equations is:

- consistent dependent - consistent independent - inconsistent

This means the system has:

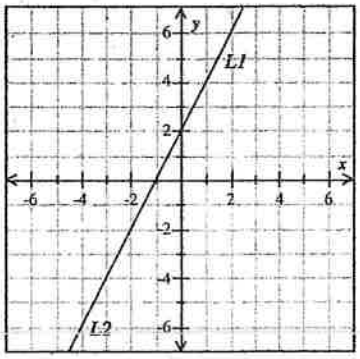
- a unique solution: - no solution - infinitely many solutions

Solution: (___ , ___)

System B

L1: $y = 2x + 2$

L2: $-2x + y = 2$



This system of equations is:

- consistent dependent - consistent independent - inconsistent

This means the system has:

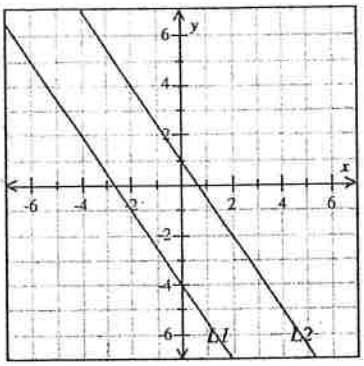
- a unique solution: - no solution - infinitely many solutions

Solution: (___ , ___)

System C

L1: $y = -\frac{3}{2}x - 4$

L2: $y = -\frac{3}{2}x + 1$



This system of equations is:

- consistent dependent - consistent independent - inconsistent

This means the system has:

- a unique solution: - no solution - infinitely many solutions

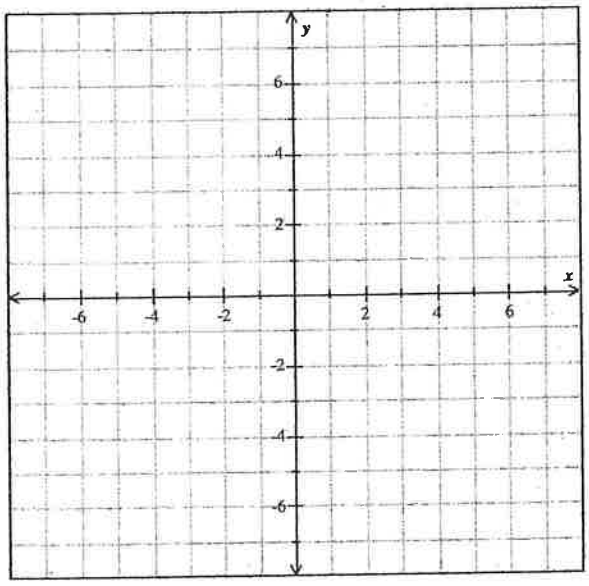
Solution: (___ , ___)

Question 3 of 12

Here is a system of equations.

$$\begin{cases} y = 3x - 4 \\ y = x - 2 \end{cases}$$

Graph the system. Then write its solution. Note that you can also answer "No solution" or "Infinitely many" solutions.

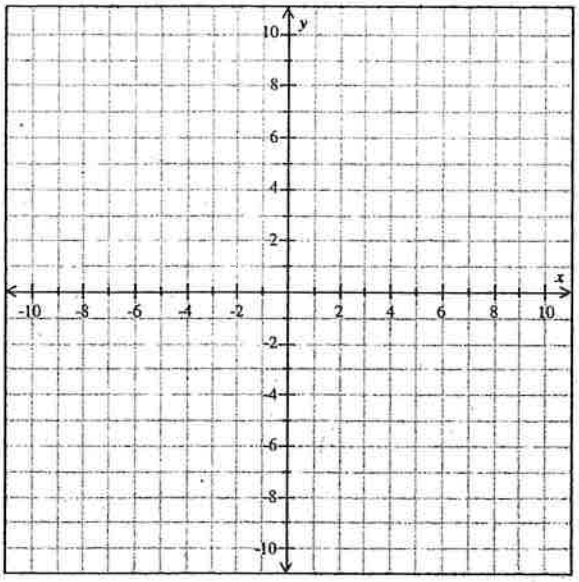


Question 4 of 12

Graph the system below and write its solution.

$$\begin{cases} y=\frac{1}{2}x+1 \\ -3x+y=6 \end{cases}$$

Note that you can also answer "No solution" or "Infinitely many" solutions.



Question 5 of 12

Solve the system of equations.

$$y=9x$$
$$y=2x+56$$

Question 6 of 12

Use substitution to solve the system.

$$3x+4y=-6$$
$$y=2x-7$$

$x=$ ☐

$y=$ ☐

Question 7 of 12

Solve the following system of equations.

$$5x+4y=10$$
$$5x+8y=30$$

Question 8 of 12

Solve the following system of equations.

$$6x-7y=0$$
$$-7x+5y=19$$

Question 9 of 12

Solve the following system of equations.

$$\frac{1}{4}x+\frac{3}{5}y=1$$

$$\frac{1}{6}x-\frac{1}{3}y=-3$$

Question 10 of 12

Solve the following system of equations.

$$0.8x-0.9y=5$$
$$1.4x-2.7y=11$$

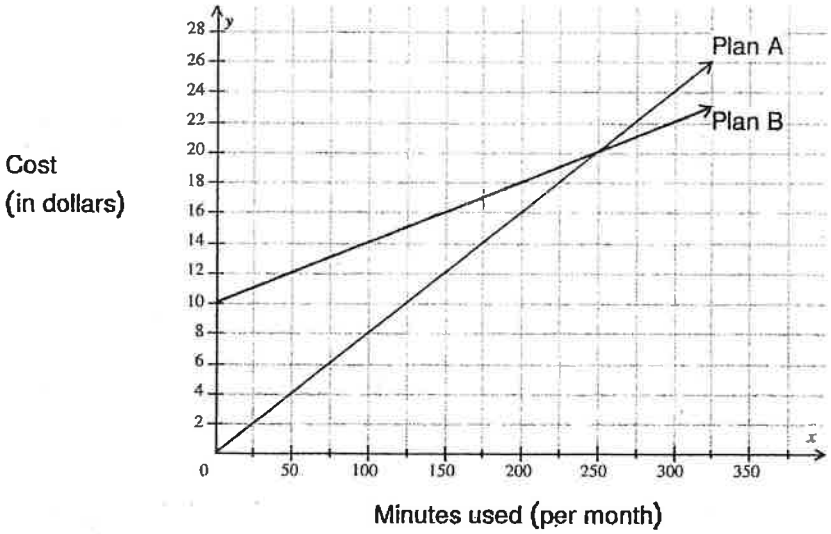
Question 11 of 12

Two systems of equations are given below.
For each system, choose the best description of its solution.
If applicable, give the solution.

System A $y=8x$ $y=2x$	○ The system has no solution. ○ The system has a unique solution: $(x, y)=(\_\_\_\_, \_\_\_\_)$ ○ The system has infinitely many solutions.
System B $-x-2y=3$ $x+2y=-3$	○ The system has no solution. ○ The system has a unique solution: $(x, y)=(\_\_\_\_, \_\_\_\_)$ ○ The system has infinitely many solutions.

Question 12 of 12

Jim can choose Plan A or Plan B for his long distance charges. For each plan, cost (in dollars) depends on minutes used (per month) as shown below.



(a) If Jim makes 50 minutes of long distance calls for the month, which plan costs more?

○ Plan A ○ Plan B

How much more does it cost than the other plan?

$_____

(b) For what number of long distance minutes do the two plans cost the same?

_____

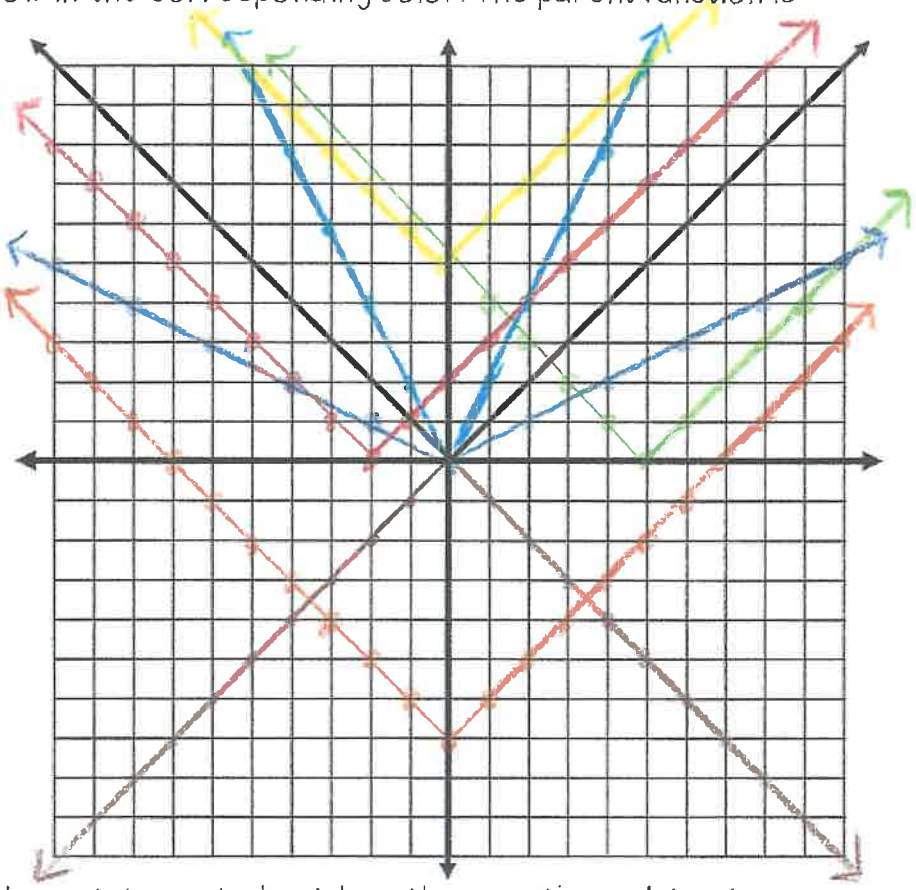
If the time spent on long distance calls is more than this amount, which plan costs more?

○ Plan A ○ Plan B

Absolute Value Functions

Directions: Graph the equations below in the corresponding color. The parent function is already graphed for you.

Parent Function	Black
$f(x)=\|x+2\|$	Red
$f(x)=\|x\|-7$	Orange
$f(x)=2\|x\|$	Blue
$f(x)=\|x-5\|$	Green
$f(x)=1/2\|x\|$	Purple
$f(x)=\|x\|+5$	Yellow
$f(x)=-\|x\|$	Brown



Compare the following colors and make a statement about how the equation relates to the transformation of the graph compared to the parent function

Red and Green:
$|x+2|$ $|x-5|$
- our graph is 2 units left
- our graph is 5 units right
+ moves left
- moves right

Orange and Yellow:
$|x|-7$ $|x|+5$
- translated down 7 units
- translated up 5 units
- moves down
+ moves up

Blue and Purple:
$2|x|$ $\frac{1}{2}|x|$
- "V" is more narrow
- "V" is wider
- >1 more narrow
- <1 but >0, wider

Brown and Black
$-|x|$ $|x|$
- parent function
- graph is downward
- $-|x|$ reflects down

Absolute Value Functions

The parent function for the family of absolute value functions is $f(x) = |x|$

$f(x) = a|x \pm h| \pm k$

Using the information you gained, fill in the following transformations.

Function	Color	Transformation from parent function
$f(x)=\|x\|+k$	Yellow	translates the graph k units up.
$f(x)=\|x\|-k$	Orange	translates the graph k units down.
$f(x)=\|x+h\|$	Red	translates the graph h units to the left.
$f(x)=\|x-h\|$	Green	translates the graph h units to the right.
$f(x)=a\|x\|$ (where $\|a\|>1$)	Blue	makes "V" more narrow.
$f(x)=a\|x\|$ (where $0<\|a\|<1$)	Purple	makes "V" wider
$f(x)=-\|x\|$	Brown	reflects graph downward.

Vertex: The vertex of an Absolute Value function is the point at which the graph changes direction. The vertex is where the function reaches its maximum or minimum value. It is defined as: **(-h, k)**

Directions: Graph the following functions by using all the information you have learned. Describe the transformation from the parent function. Label the vertex and state if it is a maximum or minimum. Finally, state the domain and range.

$f(x)=|x+2|+3$

a= 1 h= 2 k= 3

Vertex: (-2, 3)

Min or Max: min

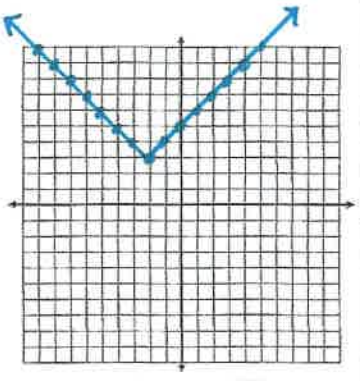
Opening: upward

Domain: all reals

Range: $y \geq 3$

Transformation from Parent:

translation left 2 units and up 3 units



$f(x)=-|x+2|$

a= -1 h= 2 k= 0

Vertex: (-2, 0)

Min or Max: max

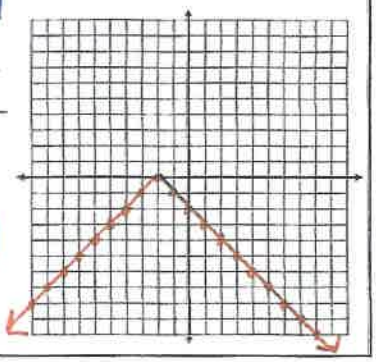
Opening: downward

Domain: all reals

Range: $y \leq 0$

Transformation from Parent:

translation left 3 units and reflected downward.



Absolute value functions

$f(x) = a|x \pm h| \pm k$

- Changes the width of the "V"
- $0 > |a| < 1$ the "V" gets wider
- $|a| > 1$ the "V" gets more narrow
- When a is negative, the "V" is reflected downward.
- a is similar to slope. Each side of the "v" will have a slope of $\pm$ a. If a is positive (the graph is upward) the the left side will have a slope of -a and the right side will have a slope of +a. If a is negative (the graph is downward) the the left side will have a slope of +a and the right side will have a slope of -a.

- h moves the vertex left or right.
- +h moves the vertex left h units.
- -h moves the vertex right h units.

- k moves the vertex up and down.
- +k moves the vertex up k units.
- -k moves the vertex down k units.

Vertex

- The vertex of the function is defined by **(-h, k)**
- When a is positive the vertex is a minimum.
- When a is negative, the vertex is a maximum.

Domain: all real numbers
Range: When a is positive $y \geq k$
When a is negative $y \leq k$

Absolute value functions

$f(x) = a|x \pm h| \pm k$

- Changes the width of the "V"
- $0 > |a| < 1$ the "V" gets wider
- $|a| > 1$ the "V" gets more narrow
- When a is negative, the "V" is reflected downward.
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- h moves the vertex left or right.
- +h moves the vertex left h units.
- -h moves the vertex right h units.

- k moves the vertex up and down.
- +k moves the vertex up k units.
- -k moves the vertex down k units.

Vertex

- The vertex of the function is defined by **(-h, k)**
- When a is positive the vertex is a minimum.
- When a is negative, the vertex is a maximum.

Domain: all real numbers
Range: When a is positive $y \geq k$
When a is negative $y \leq k$

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Practice for Inequalities Quiz #1

Class Name : **Algebra 1 - 8th grade**

Student Name : _____

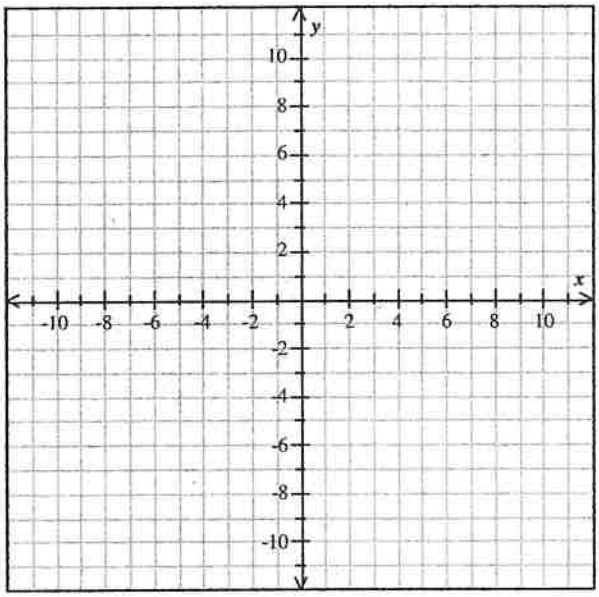
Instructor Name : **Mrs. Long**

Instructor Note : **Please try to do this practice online if at all possible. That way I can see what you are doing wrong if you have trouble.**

Question 1 of 10

Graph the inequality in the coordinate plane.

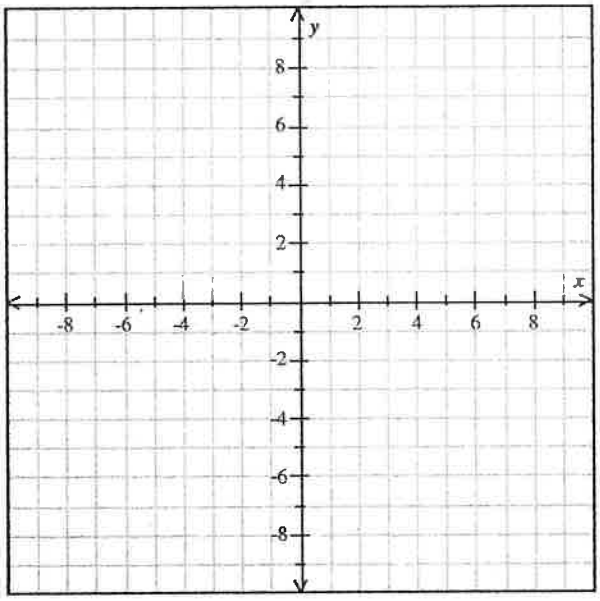
$y < -2$



Question 2 of 10

Graph the inequality.

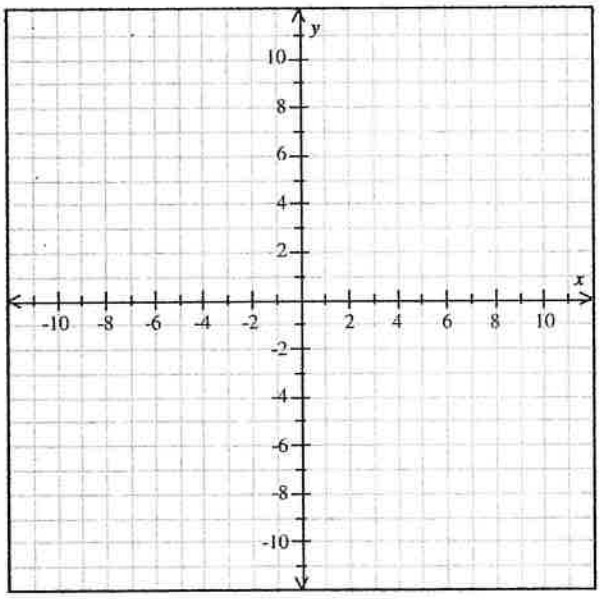
$$y \leq -4x + 2$$



Question 3 of 10

Graph the inequality.

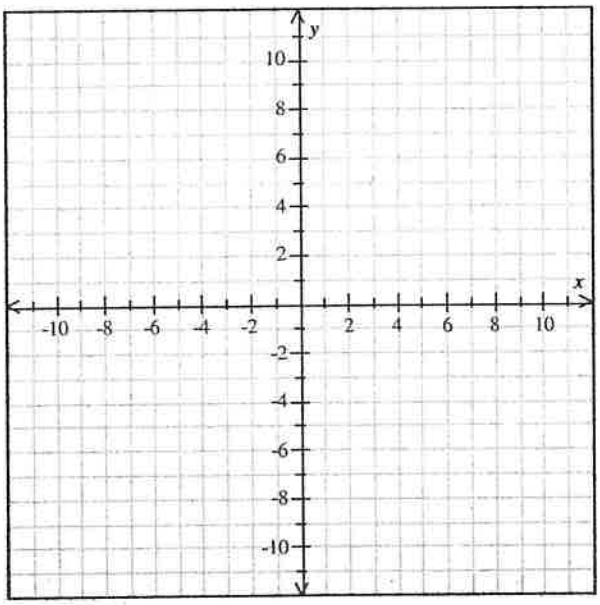
$$3x + 2y > -6$$



Question 4 of 10

Graph the solution to the following system of inequalities.

$$y \geq -4x + 7$$
$$y < 2x - 9$$

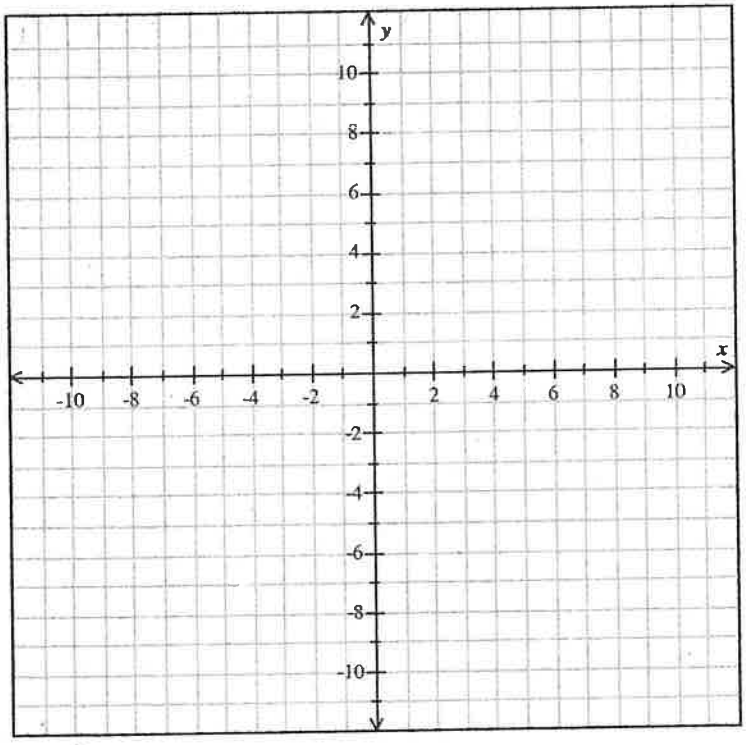


Question 5 of 10

Graph the solution to the following system of inequalities.

$$7x + 4y < 16$$
$$-5x + 7y \geq 7$$

Then give the coordinates of one point in the solution set.



Point in the solution set: _____

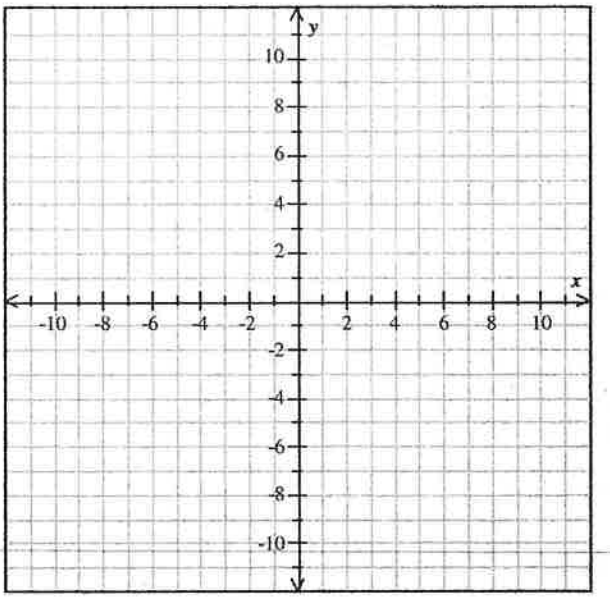
Question 6 of 10

Graph the solution to the following system of inequalities.

$-2x+5y>15$

$x\leq -2$

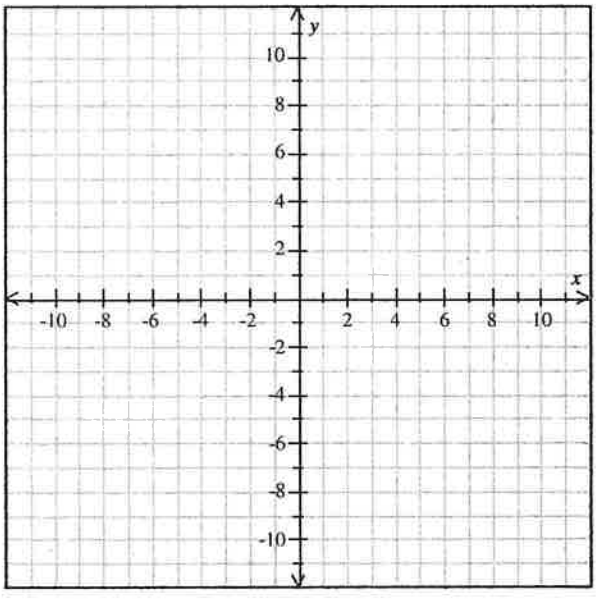
$y\leq 8$



Question 7 of 10

Graph the inequality in the coordinate plane.

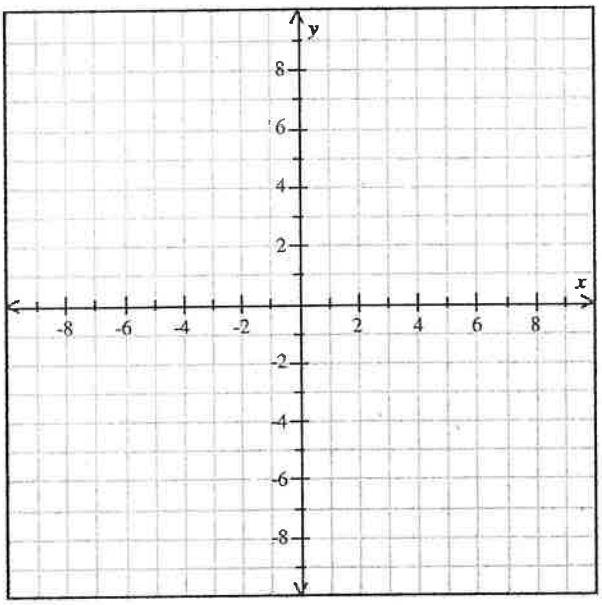
$y>7$



Question 8 of 10

Graph the inequality.

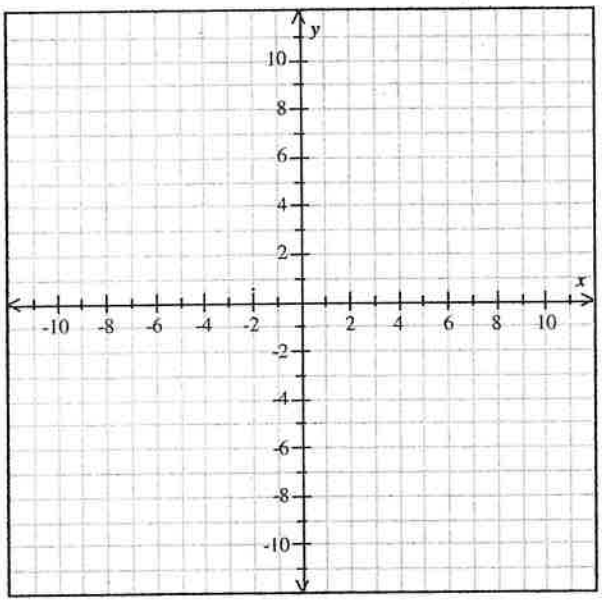
$$y \leq -5x - 2$$



Question 9 of 10

Graph the inequality.

$$-3x + 4y < 8$$



Question 10 of 10

Graph the solution to the following system of inequalities.

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