

# *Unit 7:*

## *1 & 2 Variable Inequalities*

Name: \_\_\_\_\_

### **Goals:**

**Target A:** I can solve and graph 1 variable inequalities.

**Target B:** I can solve and graph compound inequalities.

**Target C:** I can solve and graph 2 variable inequalities.

**Target D:** I can solve and graph systems of 2 variable inequalities.

**Target E:** I can model situations with inequalities.

### **Resources:**

<http://mrnohner.com/inequalities.html>

# Inequalities Vocabulary

Place the following words in the table below under the symbol that represents them.

|                          |                             |                     |
|--------------------------|-----------------------------|---------------------|
| is not the same as       | longer than beneath         | minimum             |
| over                     | at least                    | is no less than     |
| bottom                   | is less than                | above               |
| is / are / will be /only | at most                     | half (= .5* or ½ *) |
| is below that            | is different / differs from | is the same as      |
| is no more than          | exceeds / increased         | is higher than      |
| is equal to              | shorter / smaller than      | is under            |
| is lower than            | top                         | maximum             |
| exactly                  | more than                   | is not equal to     |
| a better deal            |                             |                     |

| < (less than) | = (equal) | > (greater than) |
|---------------|-----------|------------------|
|               |           |                  |
|               |           |                  |
|               |           |                  |
|               |           |                  |
|               |           |                  |
|               |           |                  |
|               |           |                  |
|               |           |                  |
|               |           |                  |

| ≤(less than or equal to) | ≠(not equal to) | ≥(greater than or equal to) |
|--------------------------|-----------------|-----------------------------|
|                          |                 |                             |
|                          |                 |                             |
|                          |                 |                             |
|                          |                 |                             |

## Day 1: Introduction to solving 1 variable inequalities.

Target A:

Define:

$<$

$>$

$\leq$

$\geq$

Notes

## Day 2: Solving Inequalities in one Variable

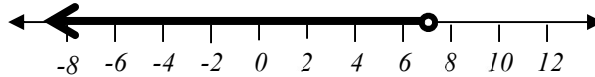
Target A:

Target B:

The process of solving inequalities is almost exactly like the process of solving equations.

$$\begin{array}{r} 3x - 5 < 16 \\ +5 \quad +5 \\ \hline \frac{3x}{3} < \frac{21}{3} \\ x < 7 \end{array}$$

The solution set:

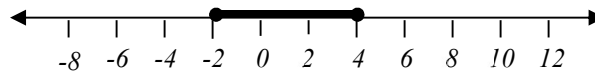


Notice that we use the same convention that the *open circle* at the value 7 means that the endpoint value is not included in the solution set.

We can also solve *compound* inequality statements in the same way:

$$\begin{array}{r} -16 \leq 5x - 6 \leq 14 \\ +6 \quad +6 \quad +6 \\ \hline \frac{-10}{5} \leq \frac{5x}{5} \leq \frac{20}{5} \\ -2 \leq x \leq 4 \end{array}$$

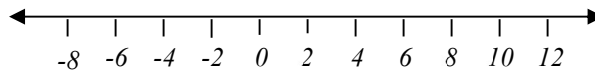
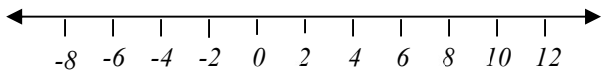
The solution set:



Solve the following inequalities and graph your result on a number line.

1)  $2x + 3 > 11$

2)  $2 \leq 4x + 6 < 14$



Complete each operation indicated and then tell if the resulting statement is true or false.

|                                     |   |                                       |
|-------------------------------------|---|---------------------------------------|
| Add 5 to both sides<br>$-10 < 0$    | Subtract 4 from both sides<br>$-10 < 0$ | Multiply both sides by 3<br>$-10 < 0$ |
| True / False?                       | True / False?                           | True / False?                         |
| Divide both sides by 5<br>$-10 < 0$ | Multiply both sides by -2<br>$-10 < 0$  | Divide both sides by -5<br>$-10 < 0$  |
| True / False?                       | True / False?                           | True / False?                         |

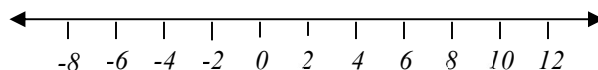
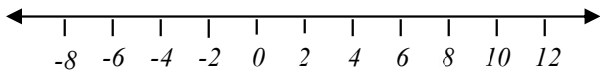
Everything was fine until the last two operations! The result you get for those last two operations is exactly backward. That is the biggest difference between solving *equations* and ***solving inequalities***:

***When you multiply or divide by a negative number, you must reverse the direction of the inequality.***

Let's try a few of these. Solve each inequality and graph your result on the number line provided.

1)  $5 - 3x \geq -4$

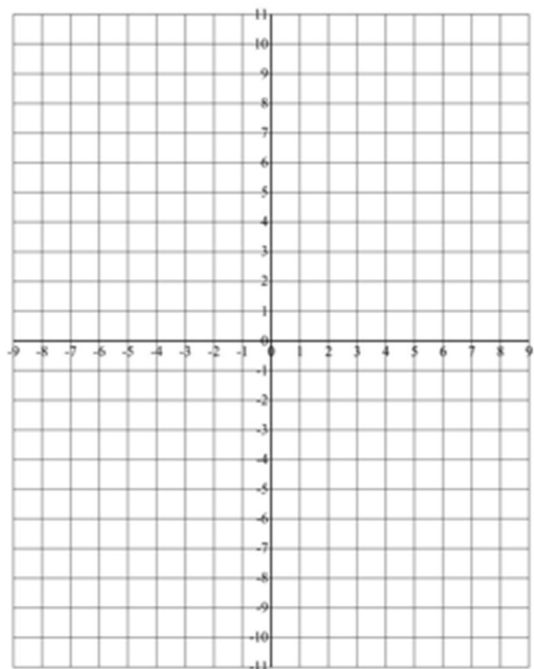
2)  $3 - 2x < 5$



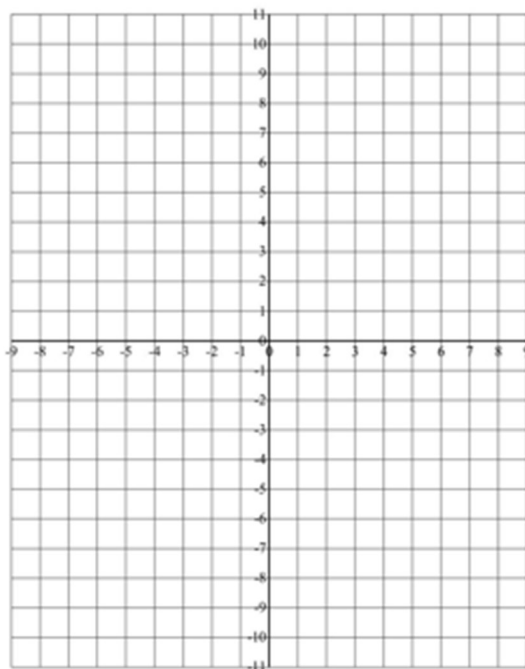
## Day 3: Graphing Inequalities in Two Variables

Target C:

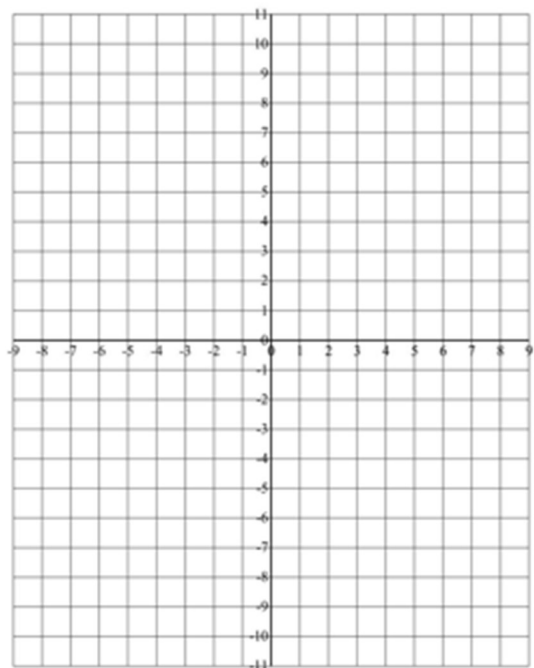
1.  $y = -\frac{1}{2}x + 5$



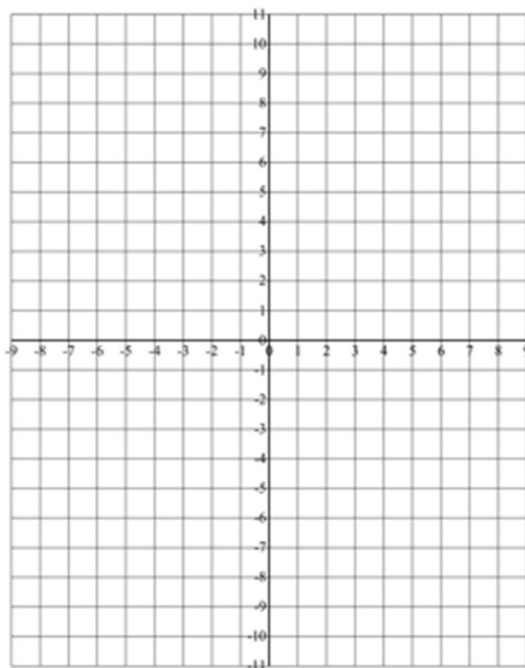
2.  $y = 8x - 6$



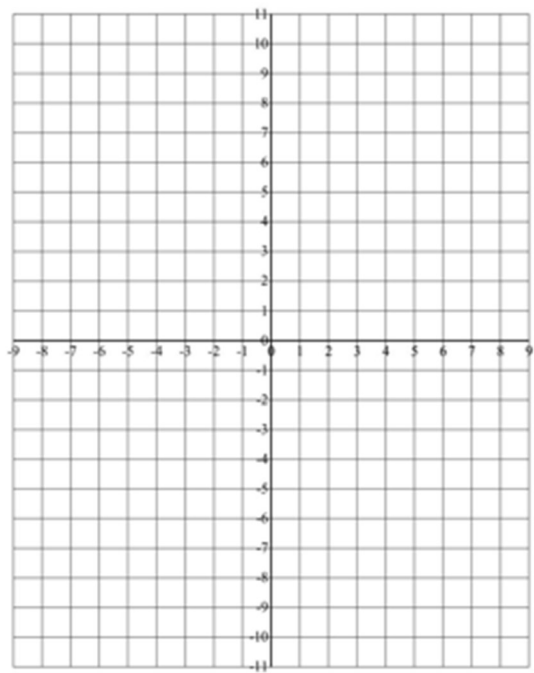
3.  $2x + 4y = 12$



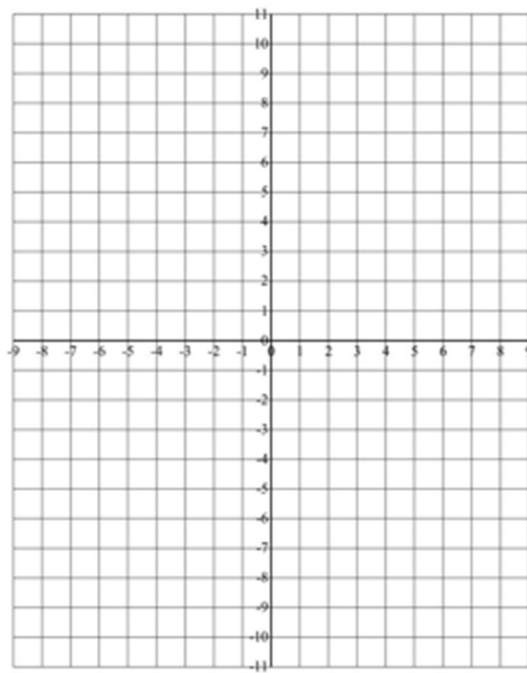
4.  $8x - 6y = 24$



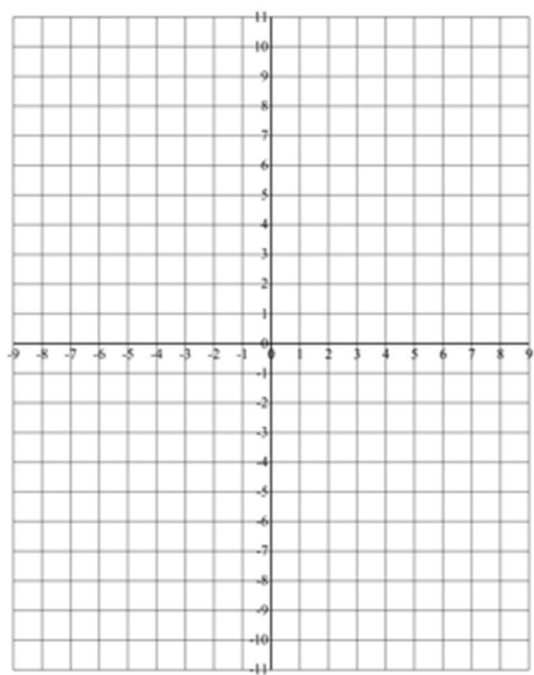
5.  $y = \frac{1}{2}x + 3$



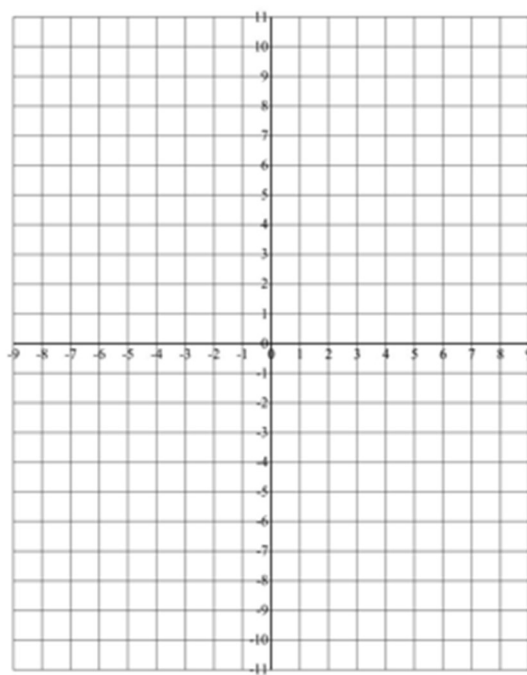
6.  $y > \frac{1}{5}x - 7$



7.  $8x - 4y > 24$



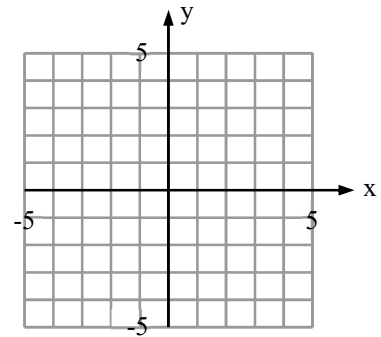
8.  $3x + 2y > 6$



- Steps:**
- 1. Graph boundary line**  
 $(<, >) \rightarrow$  dotted  
 $(\leq, \geq) \rightarrow$  solid
  - 2. Test a point**  
*Usually (0, 0)*
  - 3. Shade correct side**  
*(True side)*

9. Graph:  $y \leq 4 - \frac{x}{2}$

- a. graph boundary  $y = 4 - \frac{x}{2}$   
 (dotted or solid?) circle one  
 slope = \_\_\_\_\_ y-int = \_\_\_\_\_

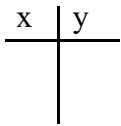


- b. Test (0, 0) in the original problem  $y \leq 4 - \frac{x}{2}$

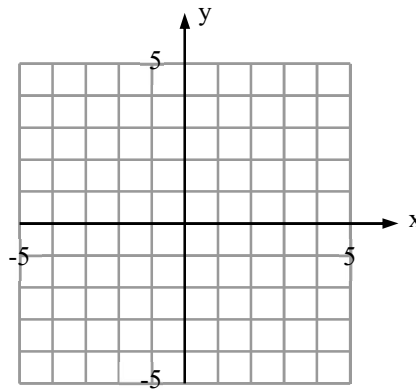
c. Shade ...

10. Graph:  $3x - 2y < 12$

- a. graph boundary  $3x - 2y = 12$   
 (dotted or solid?) circle one



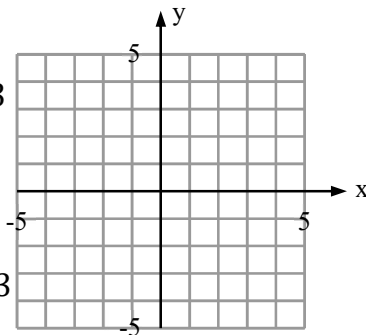
- b. Test (0, 0) in the original problem  $3x - 2y < 12$



c. Shade ...

11. Graph:  $y < 3$

- a. graph boundary  $y = 3$   
 (dotted or solid?) circle one

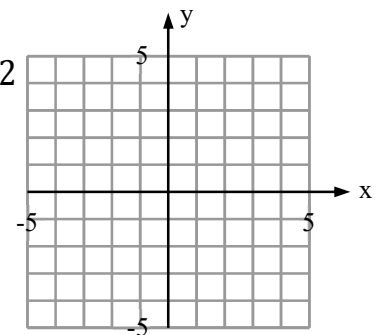


- b. Test (0, 0) in the original problem  $y < 3$

c. Shade ...

12. Graph:  $x \geq 2$

- a. graph boundary  $x = 2$   
 (dotted or solid?) circle one



- b. Test (0, 0) in the original problem  $y \leq 2x$

c. Shade ...

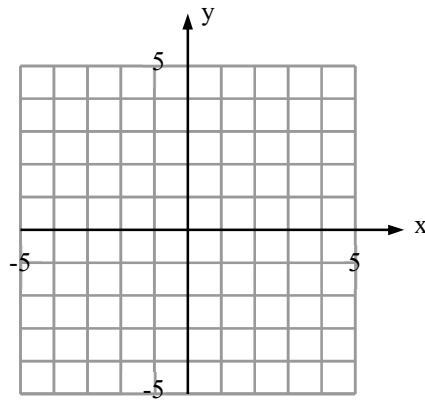


5. Graph:  $y \leq 2x$

a. graph boundary  $y = 2x$   
(dotted or solid?) circle one  
slope = \_\_\_\_\_ y-int = \_\_\_\_\_

b. Test ( , ) in the original  
problem  $y \leq 2x$

c. Shade ...



## Day 4: Solving Systems of Inequalities by Graphing

### Target D:

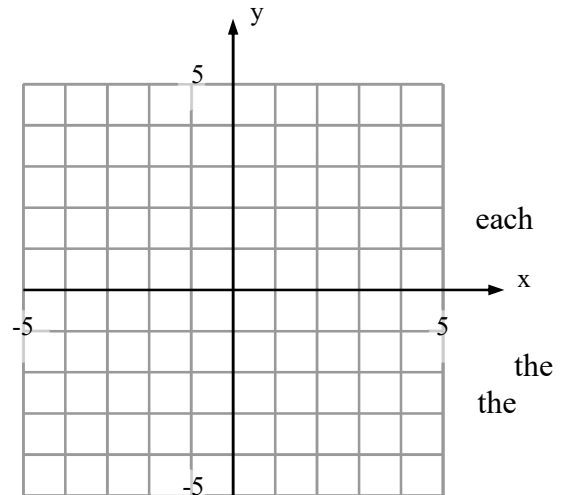
Now that we know how to graph one inequality in two variables, we can apply this skill to allow us to solve systems of inequalities.

$$y > 2x - 5$$

Consider this system:

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

Graph each inequality on the same grid. Shade the solution to inequality very lightly. After both inequalities have their boundary lines and light shading in place, shade (using little circles or a darker shading) the region of the graph that satisfies **both** inequalities. This is the region that contains shading for **both** inequalities. This region is the solution for system.



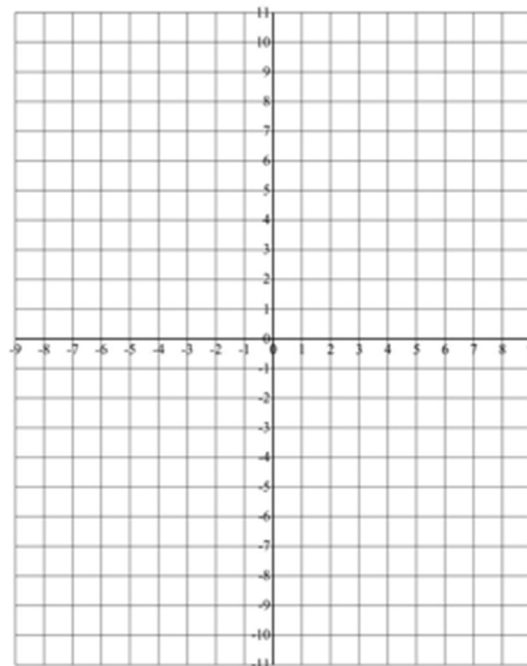
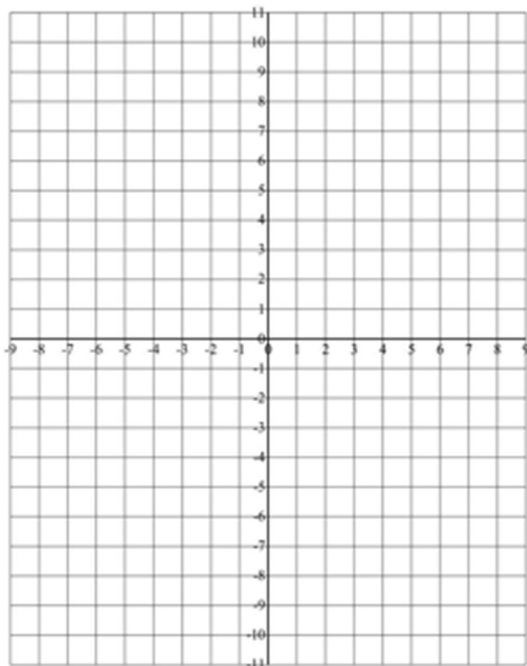
Solve each of the following systems of inequalities by graphing.

1)  $y \leq \frac{3}{4}x - 6$

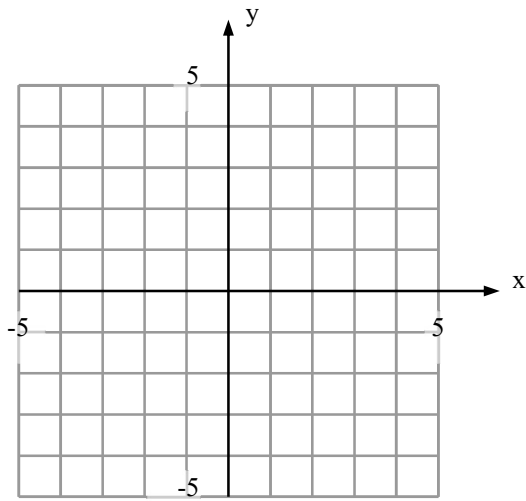
2)  $y > -5x + 2$

$10x + 5y > 50$

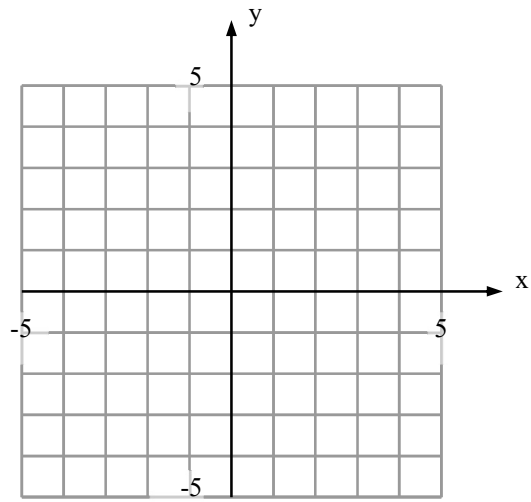
$3x - 12y > -24$



3)  $2x + 3y \geq 6$   
 $2x - y < 5$



4)  $y < 3x - 4$   
 $2x - 3y > 6$   
 $x \leq 5$

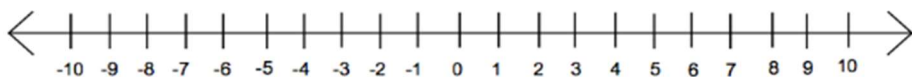


## Day 5: Review and Situations with Inequalities.

Target E:

Solve the following problems.

1)  $5 < 3x + 2 \leq 35$



2)  $1 \leq \frac{3x + 5}{5} < 4$

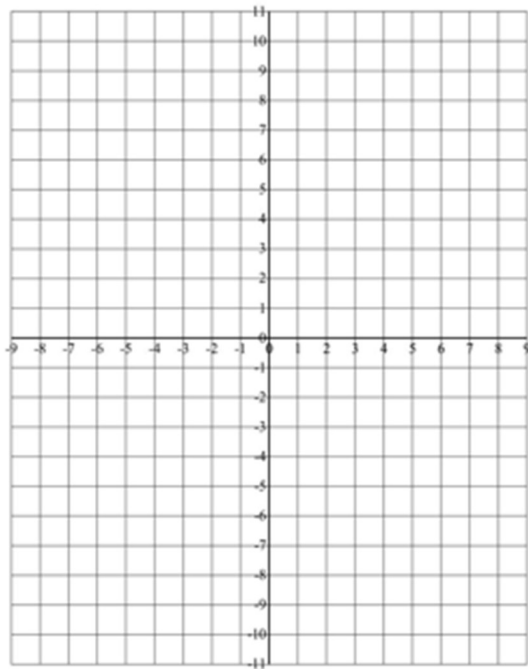


3)  $-27 < -2x - 7 \leq 5$



4)  $y > -5x + 2$

$3x - 12y \geq -24$



- 5) Reggie and Tim are trying to lose weight. Reggie weighs 250 pounds and Tim weighs 210. Every week Reggie loses 2 pounds and Tim loses half of a pound every week. When will Reggie weigh less than Tim?

Write an inequality to represent this situation and solve.

- 6) You are shooting a rocket off and want to deploy the parachute between 1000 and 1500 feet. Your rocket starts at a height of 10 feet off the ground and travels at a speed of 150 feet per second.

Write a compound inequality to represent this situation and solve.

Guide notes

|          |       |
|----------|-------|
| Title:   | Date: |
| Goal:    |       |
| Notes:   |       |
| Summary: |       |

Guide notes

|          |       |
|----------|-------|
| Title:   | Date: |
| Goal:    |       |
| Notes:   |       |
| Summary: |       |

Guide notes

|          |       |
|----------|-------|
| Title:   | Date: |
| Goal:    |       |
| Notes:   |       |
| Summary: |       |

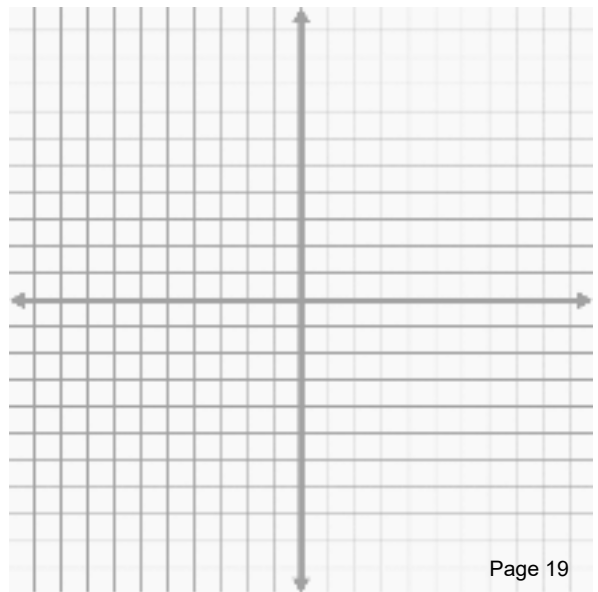
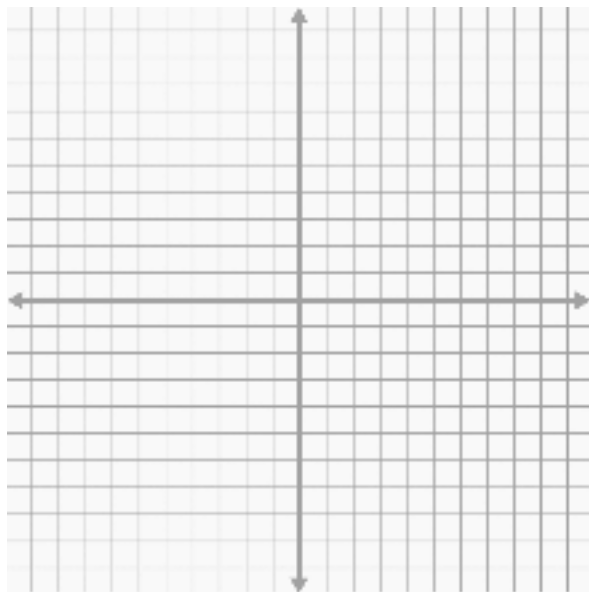
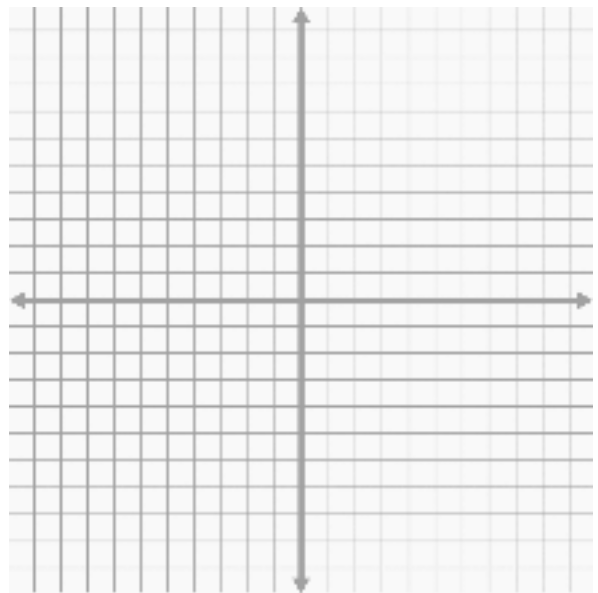
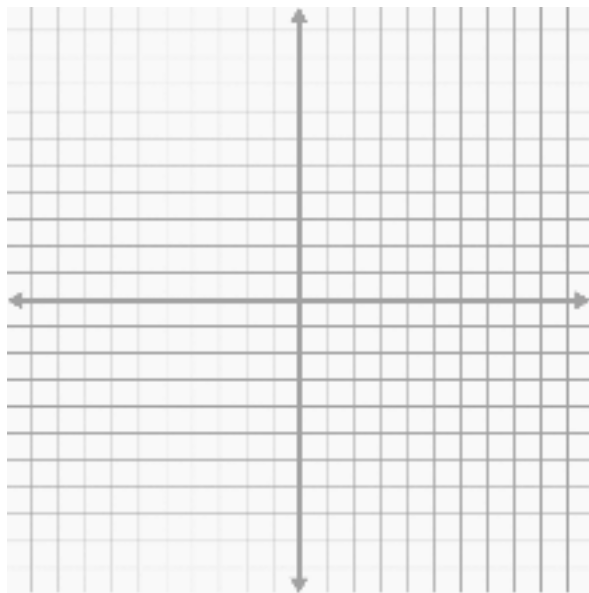
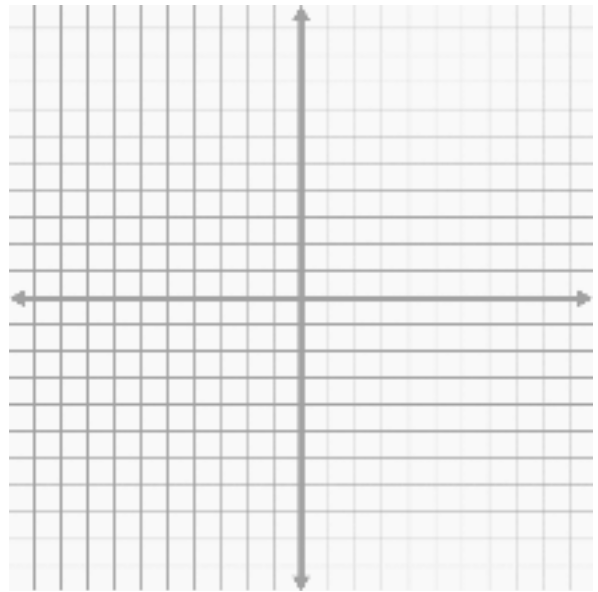
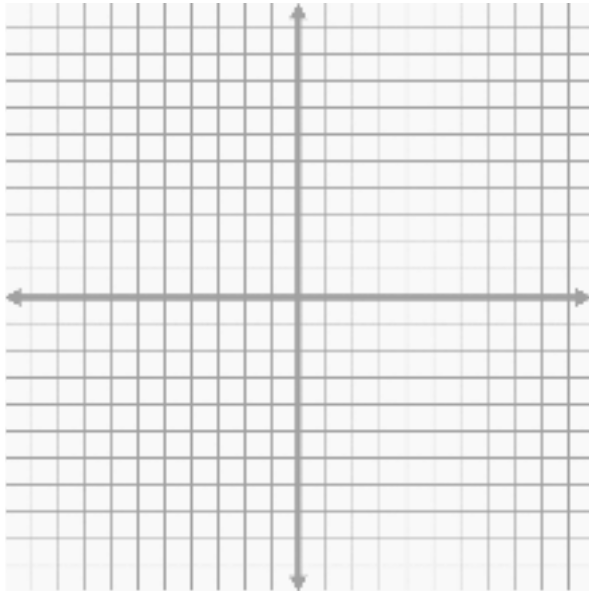


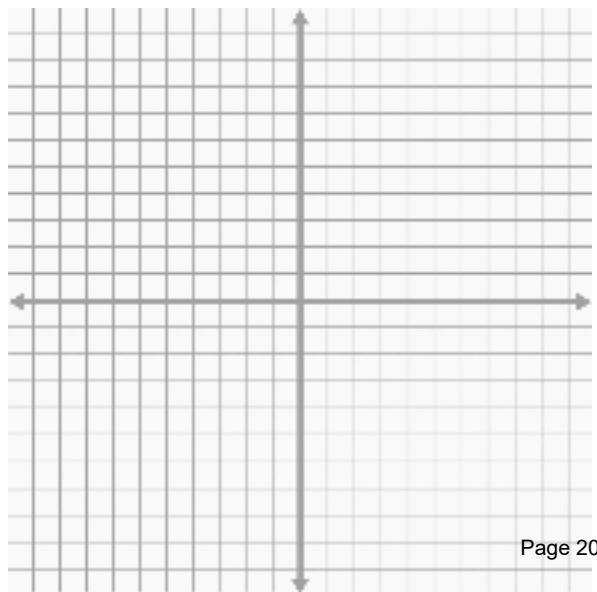
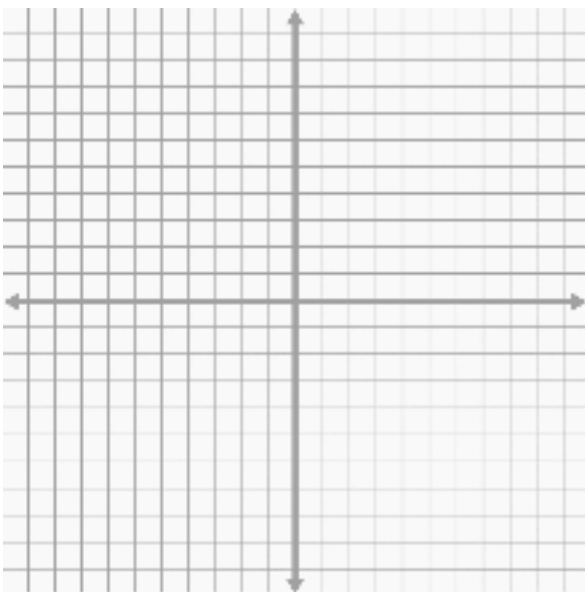
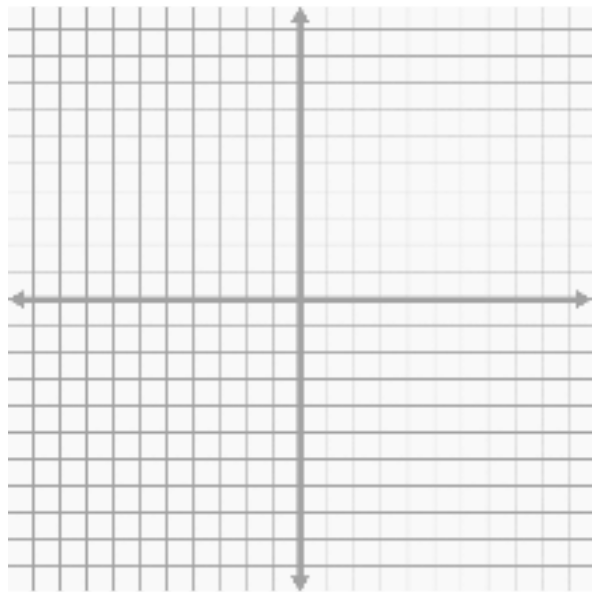
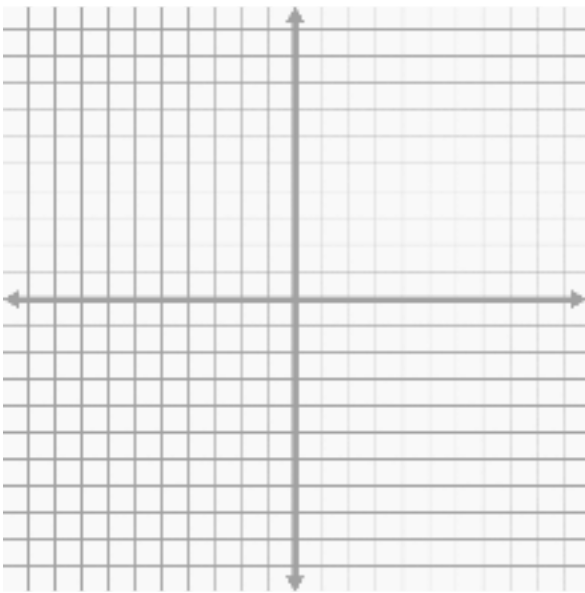
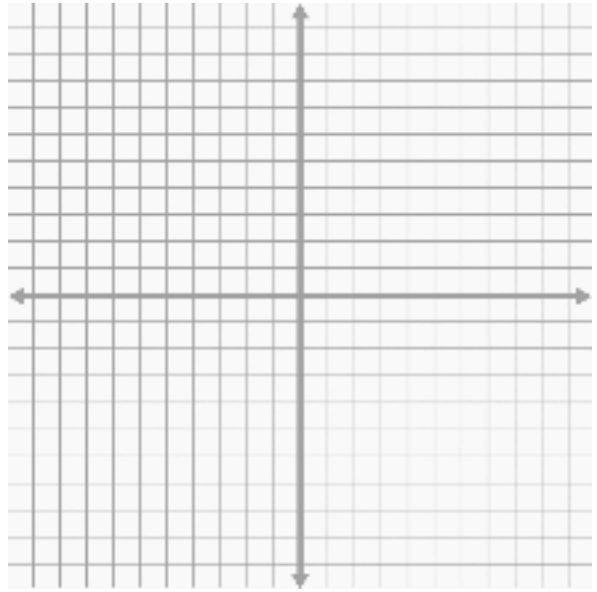
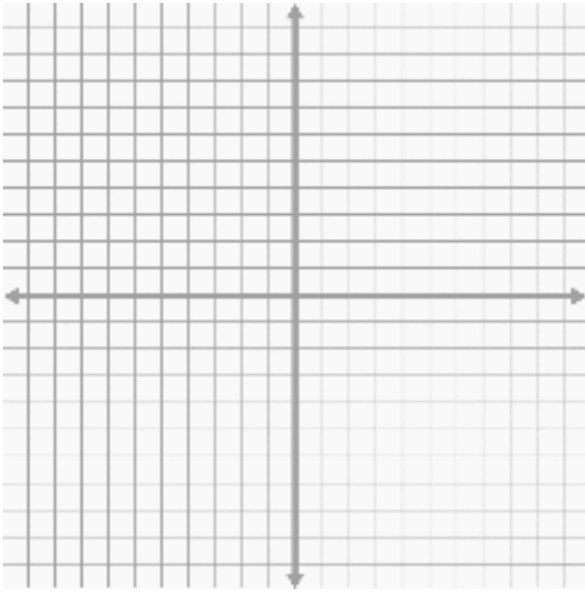
Guide notes

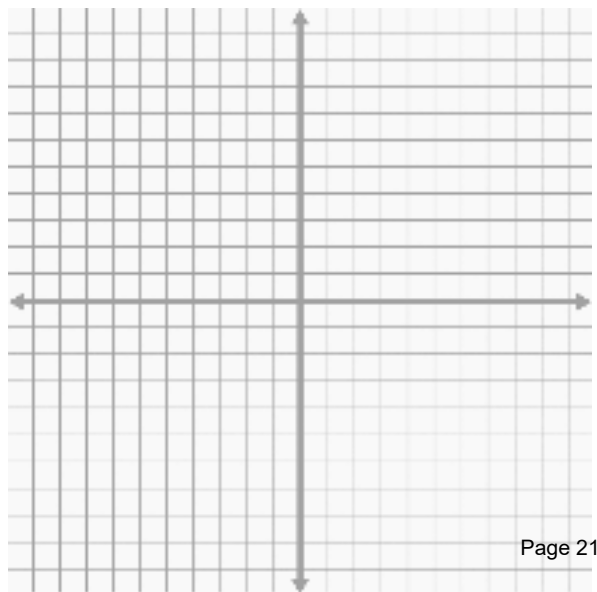
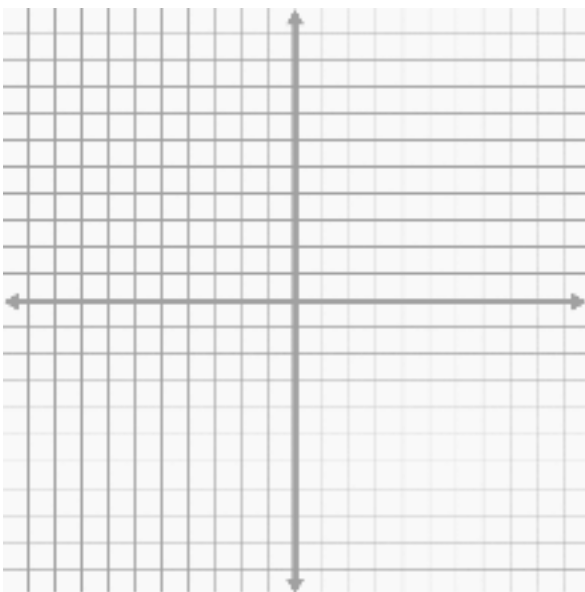
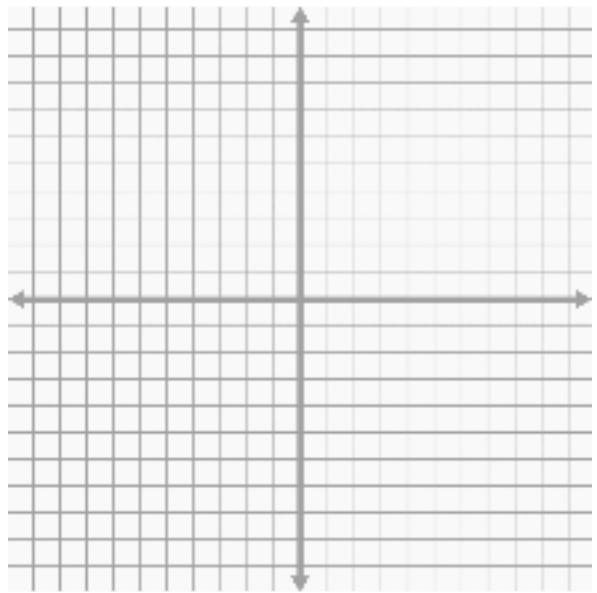
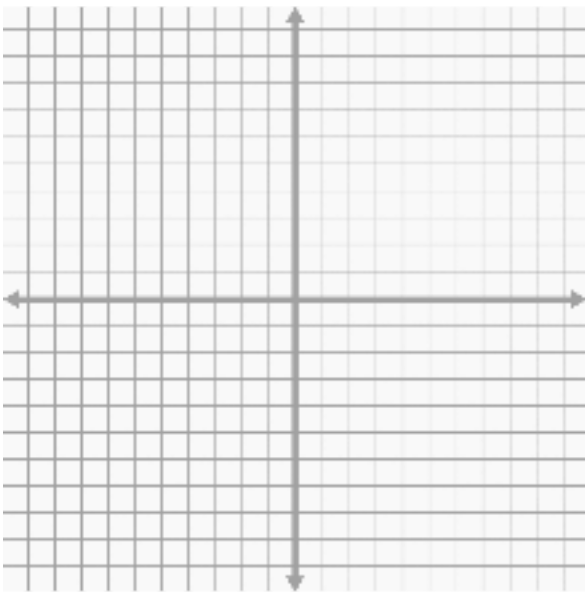
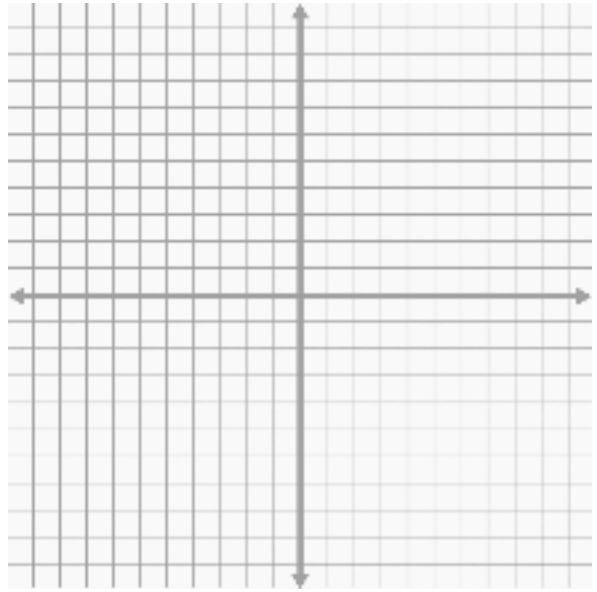
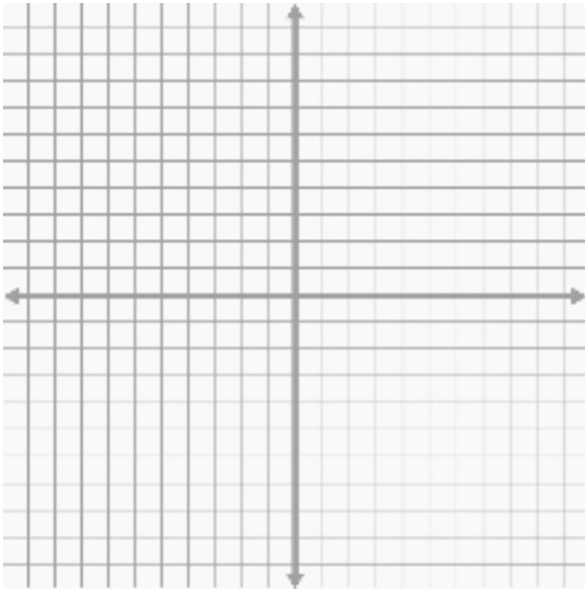
|          |       |
|----------|-------|
| Title:   | Date: |
| Goal:    |       |
| Notes:   |       |
| Summary: |       |

Guide notes

|          |       |
|----------|-------|
| Title:   | Date: |
| Goal:    |       |
| Notes:   |       |
| Summary: |       |







## Linear Inequalities

Given the linear inequality  $2x - 5 \geq 3$ .

- 1) How many solutions are there?
- 2) What is the smallest solution for  $x$ ?
- 3) What is the boundary point? Why is it important to find?

Given the linear inequality  $15 - 6x < 3$ .

- 4) What is the boundary point? Is it a solution to the inequality?
- 5) Circle all of the  $x$  values that are solutions to the inequality.

-10   -5   -3   0   3   5   10

- 6) Graph the solution on the number line below.

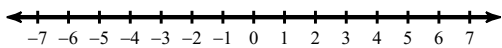


- 7) This inequality has a less than sign: True or false, every time we solve a problem with a less than sign we shade left and every time there is a greater than sign we shade right?

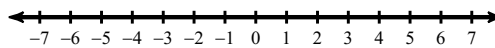
# Solving Linear Inequalities

Draw a graph for each inequality.

1)  $x \leq 2$

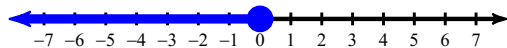


2)  $k \geq 6$

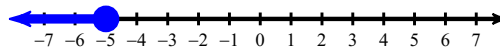


Write an inequality for each graph.

3)

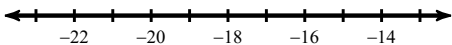


4)

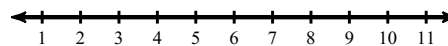


Solve each inequality and graph its solution.

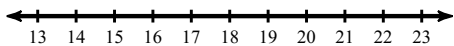
5)  $135 \geq -9p$



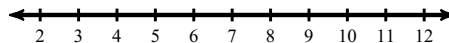
6)  $2 + \frac{m}{3} \geq 4$



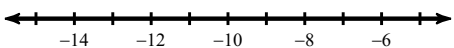
7)  $107 > 5 + 6x$



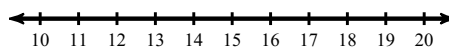
8)  $\frac{r-5}{4} \geq 1$



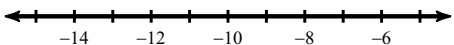
9)  $-1 + 10x \geq -111$



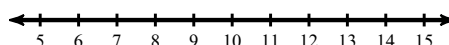
10)  $44 \leq 2(4 + n)$



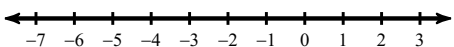
11)  $-6(n - 8) \leq 96$



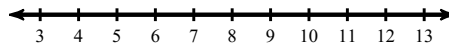
12)  $85 < 5(1 + 2b)$



13)  $3x - 13 < -8(-3x - 2) - 8$



14)  $-2x - 26 \geq -6 - 2(3 + 2x)$

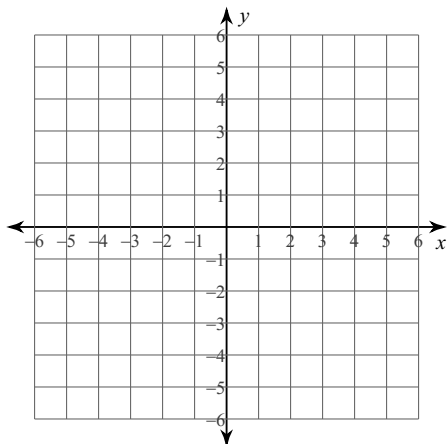




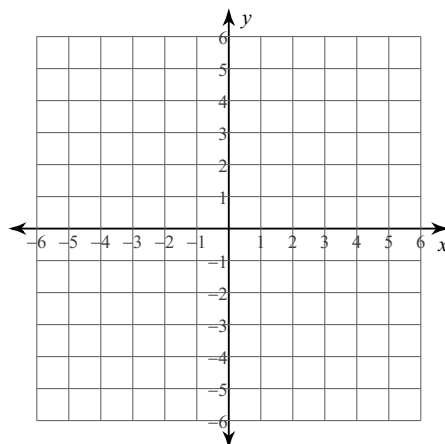
# Graphing Two Variable Inequalities

Sketch the graph of each linear inequality.

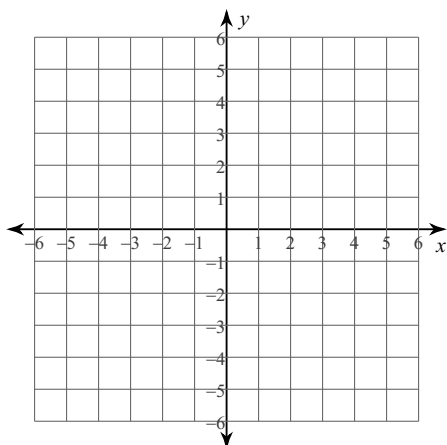
1)  $2x - y \leq -4$



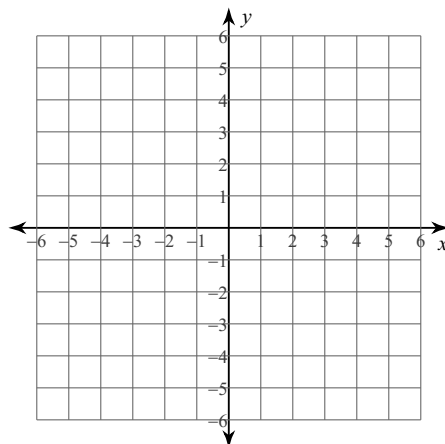
2)  $y < \frac{3}{4}x - 1$



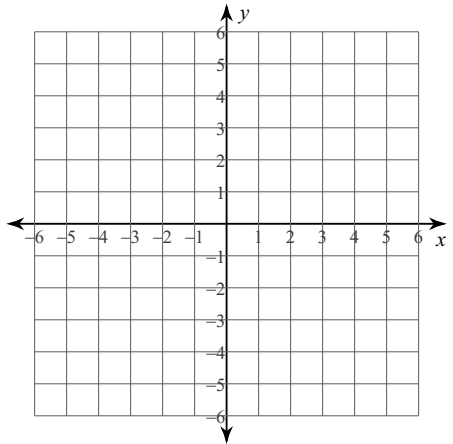
3)  $x + y < 2$



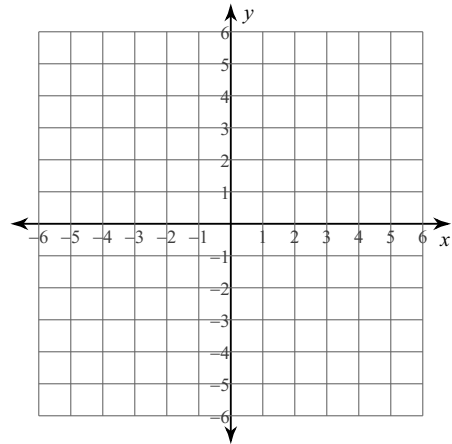
4)  $y \geq \frac{5}{2}x + 3$



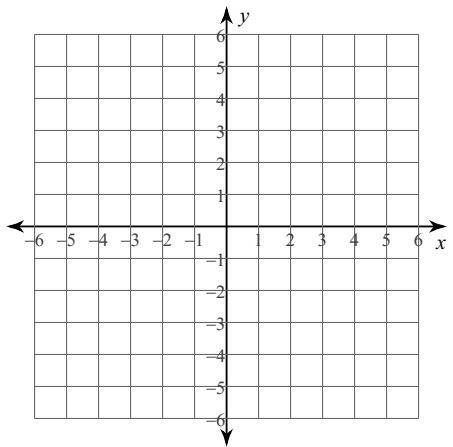
$$5) y < \frac{5}{2}x - 3$$



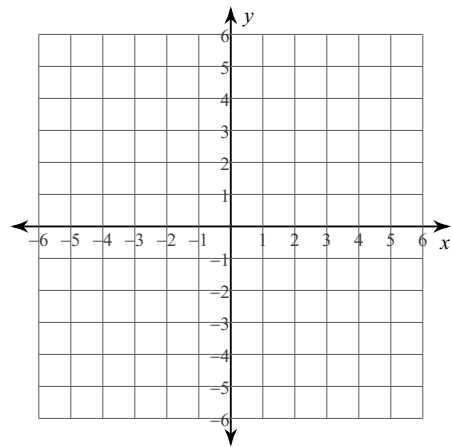
$$6) y > -\frac{4}{5}x - 1$$



$$7) x - 2y < 6$$



$$8) 2x - y \geq 2$$

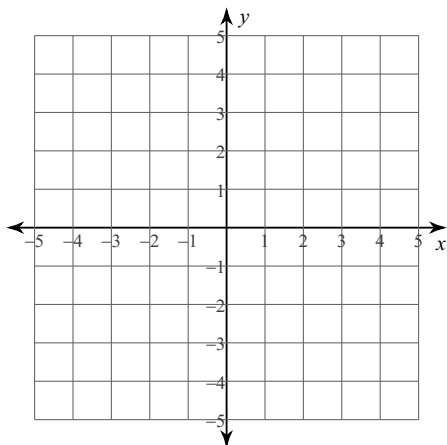


## Graphing Systems Of Inequalities

Sketch the solution to each system of inequalities.

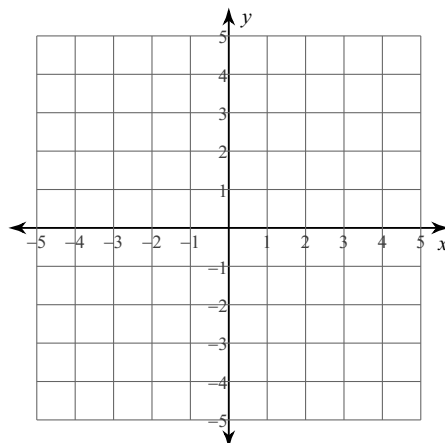
1)  $y \geq 2x - 3$

$y < \frac{2}{3}x + 1$



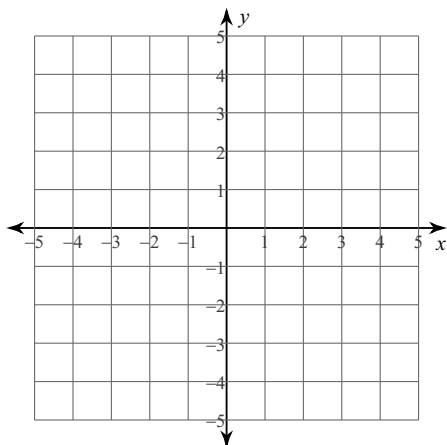
2)  $y > \frac{1}{2}x + 1$

$y \leq -\frac{1}{2}x + 3$



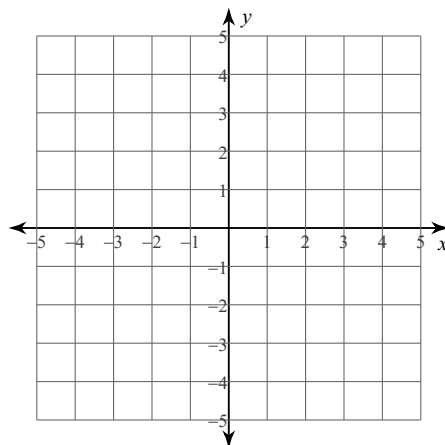
3)  $3x - y > 3$

$x - 2y \geq -4$



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

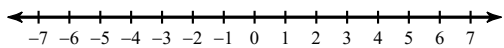
$2x + y > 2$



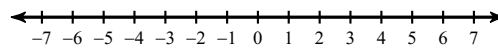
## Practice Test

**Target A: I can solve and graph 1 variable inequalities: Draw a graph for each inequality.**

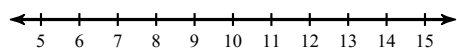
1)  $n \geq -5$



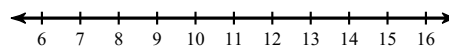
2)  $2 \geq x$



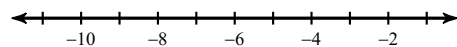
3)  $-3(9 + n) < -51$



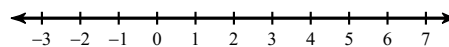
4)  $1 > \frac{7 + p}{15}$



5)  $4(6 + 5n) + 1 < -115$

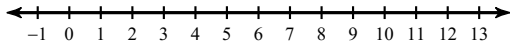


6)  $39 - 3p > -4(-4 - 5p)$

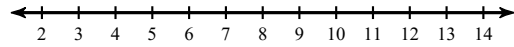


**Target B: I can solve and graph compound inequalities. Solve each compound inequality and graph its solution.**

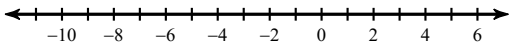
7)  $-6k < -60$  or  $2k < 4$



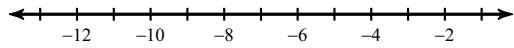
8)  $-10 + 4x > 30$  or  $x + 2 \leq 9$



9)  $-5 - 6x \leq 55$  and  $2x + 1 < 7$

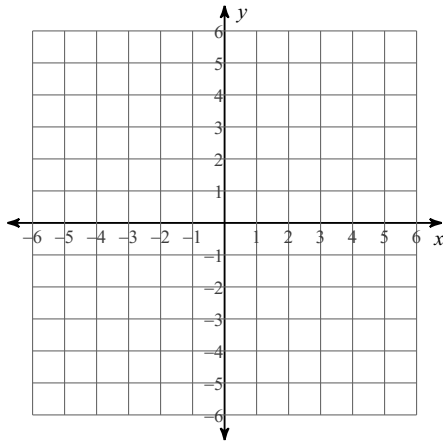


10)  $-14 < -4 + r < -11$

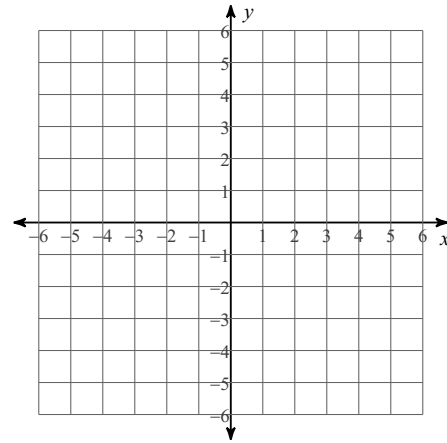


**Target C: I can solve and graph 2 variable inequalities: Sketch the graph of each linear inequality.**

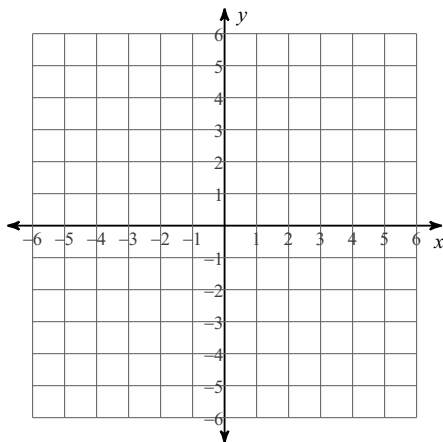
11)  $y > -x - 3$



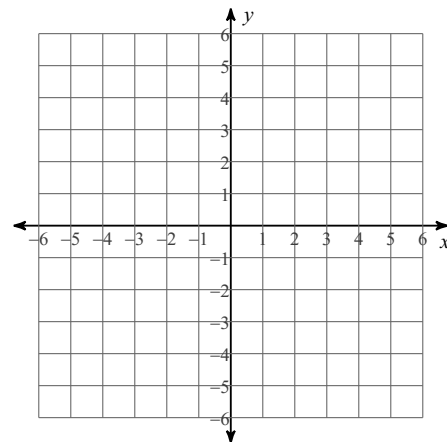
12)  $y \leq \frac{5}{4}x + 5$



13)  $y \leq \frac{1}{2}x - 4$



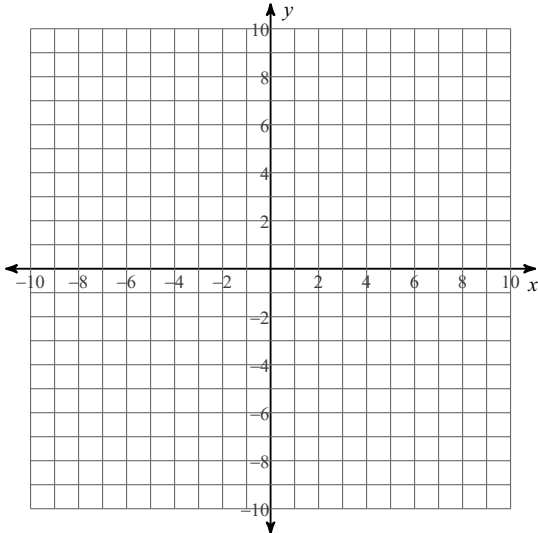
14)  $y > -\frac{2}{3}x + 1$



**Target D: I can solve and graph systems of 2 variable inequalities: Sketch the solution to each system of inequalities.**

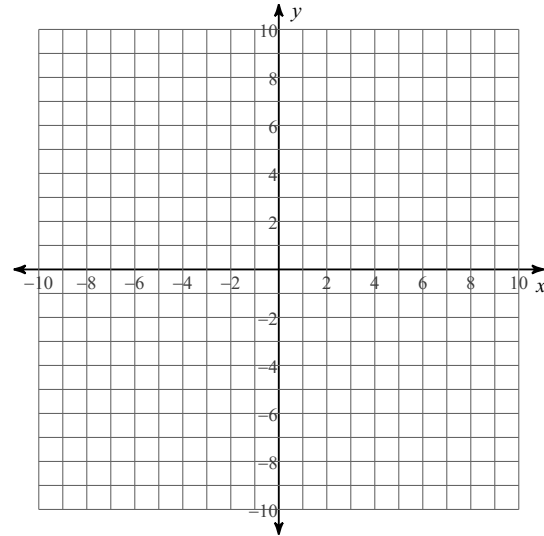
$$15) \ y \leq -\frac{13}{2}x - 7$$

$$y < -\frac{1}{2}x + 5$$



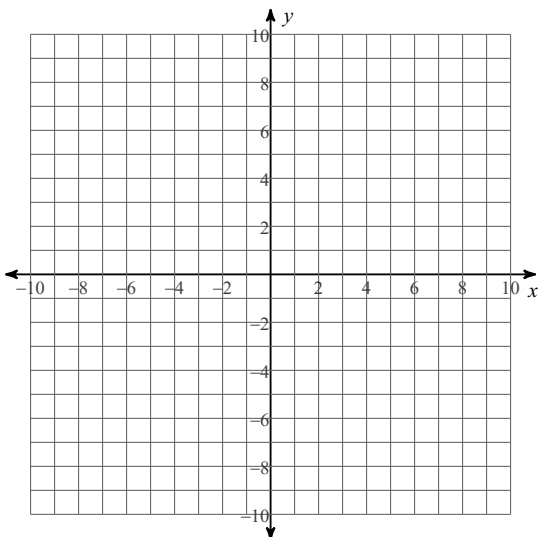
$$16) \ y < -\frac{1}{2}x + 3$$

$$y \geq x - 3$$



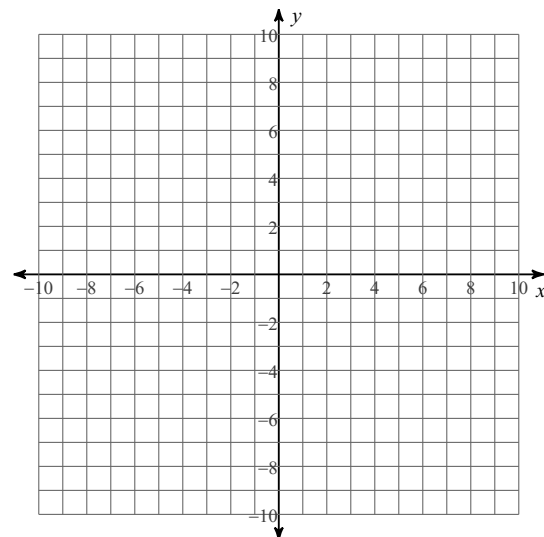
$$17) \ y \geq -\frac{11}{5}x + 8$$

$$y > \frac{2}{5}x - 5$$



$$18) \ y > -\frac{3}{8}x - 1$$

$$y < -\frac{11}{8}x + 7$$



**Target E: I can model situations with inequalities: Write the inequality that matches the following situation and graph the solution on a number line.**

- 19) Teddy is grounded and trying to figure out when he can get his phone back. He currently has a 34% and every homework assignment he does raises his grade 2.6%. He needs his grade to be between a 73% and a 86% to get his phone back.
- 20) Claire and Sophie both play basketball. So far Claire as a junior has 125 rebounds and Sophie as a sophomore has 56. Sophie has been catching up though and grabbing 12 rebounds a game whereas Claire has only been getting 9 rebounds a game. When does Sophie have as many or more rebounds as Claire?



ACT Practice

A function  $f(x)$  is defined as  $f(x) = -8x^2$ . What is  $f(-3)$  ?

- F. -72
- G. 72
- H. 192
- J. -576
- K. 576

4. Marlon is bowling in a tournament and has the highest average after 5 games, with scores of 210, 225, 254, 231, and 280. In order to maintain this exact average, what *must* be Marlon's score for his 6th game?

- F. 200
- G. 210
- H. 231
- J. 240
- K. 245

Joelle earns her regular pay of \$7.50 per hour for up to 40 hours of work in a week. For each hour over 40 hours of work in a week, Joelle is paid  $1\frac{1}{2}$  times her regular pay. How much does Joelle earn for a week in which she works 42 hours?

- A. \$126.00
- B. \$315.00
- C. \$322.50
- D. \$378.00
- E. \$472.50

If  $3^x = 54$ , then which of the following must be true?

- A.  $1 < x < 2$
- B.  $2 < x < 3$
- C.  $3 < x < 4$
- D.  $4 < x < 5$
- E.  $5 < x$

The expression  $(3x - 4y^2)(3x + 4y^2)$  is equivalent to:

- A.  $9x^2 - 16y^4$
- B.  $9x^2 - 8y^4$
- C.  $9x^2 + 16y^4$
- D.  $6x^2 - 16y^4$
- E.  $6x^2 - 8y^4$

7. If  $9(x - 9) = -11$ , then  $x = ?$

- A.  $-\frac{92}{9}$
- B.  $-\frac{20}{9}$
- C.  $-\frac{11}{9}$
- D.  $-\frac{2}{9}$
- E.  $\frac{70}{9}$

$$-3|-6 + 8| = ?$$

- F. -42
- G. -6
- H. -1
- J. 6
- K. 42

Which of the following mathematical expressions is equivalent to the verbal expression "A number,  $x$ , squared is 39 more than the product of 10 and  $x$ " ?

- F.  $2x = 39 + 10x$
- G.  $2x = 39x + 10x$
- H.  $x^2 = 39 - 10x$
- J.  $x^2 = 39 + x^{10}$
- K.  $x^2 = 39 + 10x$

$(a + 2b + 3c) - (4a + 6b - 5c)$  is equivalent to:

- A.  $-4a - 8b - 2c$
- B.  $-4a - 4b + 8c$
- C.  $-3a + 8b - 2c$
- D.  $-3a - 4b - 2c$
- E.  $-3a - 4b + 8c$

What is the least common multiple of 70, 60, and 50 ?

- F. 60
- G. 180
- H. 210
- J. 2,100
- K. 210,000

The inequality  $6(x + 2) > 7(x - 5)$  is equivalent to which of the following inequalities?

- A.  $x < -23$
- B.  $x < 7$
- C.  $x < 17$
- D.  $x < 37$
- E.  $x < 47$

The graph of  $y = -5x^2 + 9$  passes through  $(1, 2a)$  in the standard  $(x, y)$  coordinate plane. What is the value of  $a$  ?

- F. 2
- G. 4
- H. 7
- J. -1
- K. -8

The weekly fee for staying at the Pleasant Lake Campground is \$20 per vehicle and \$10 per person. Last year, weekly fees were paid for  $v$  vehicles and  $p$  persons. Which of the following expressions gives the total amount, in dollars, collected for weekly fees last year?

- A.  $20v + 10p$
- B.  $20p + 10v$
- C.  $10(v + p)$
- D.  $30(v + p)$
- E.  $10(v + p) + 20p$

Discount tickets to a basketball tournament sell for \$4.00 each. Enrico spent \$60.00 on discount tickets, \$37.50 less than if he had bought the tickets at the regular price. What was the regular ticket price?

- F. \$ 2.50
- G. \$ 6.40
- H. \$ 6.50
- J. \$ 7.50
- K. \$11.00

A copy machine makes 60 copies per minute. A second copy machine makes 80 copies per minute. The second machine starts making copies 2 minutes after the first machine starts. Both machines stop making copies 8 minutes after the first machine started. Together, the 2 machines made how many copies?

- A. 480
- B. 600
- C. 680
- D. 720
- E. 960

If  $r = 9$ ,  $b = 5$ , and  $g = -6$ , what does  $(r + b - g)(b + g)$  equal?

- F. -20
- G. -8
- H. 8
- J. 19
- K. 20

In the school cafeteria, students choose their lunch from 3 sandwiches, 3 soups, 4 salads, and 2 drinks. How many different lunches are possible for a student who chooses exactly 1 sandwich, 1 soup, 1 salad, and 1 drink?

- F. 2
- G. 4
- H. 12
- J. 36
- K. 72

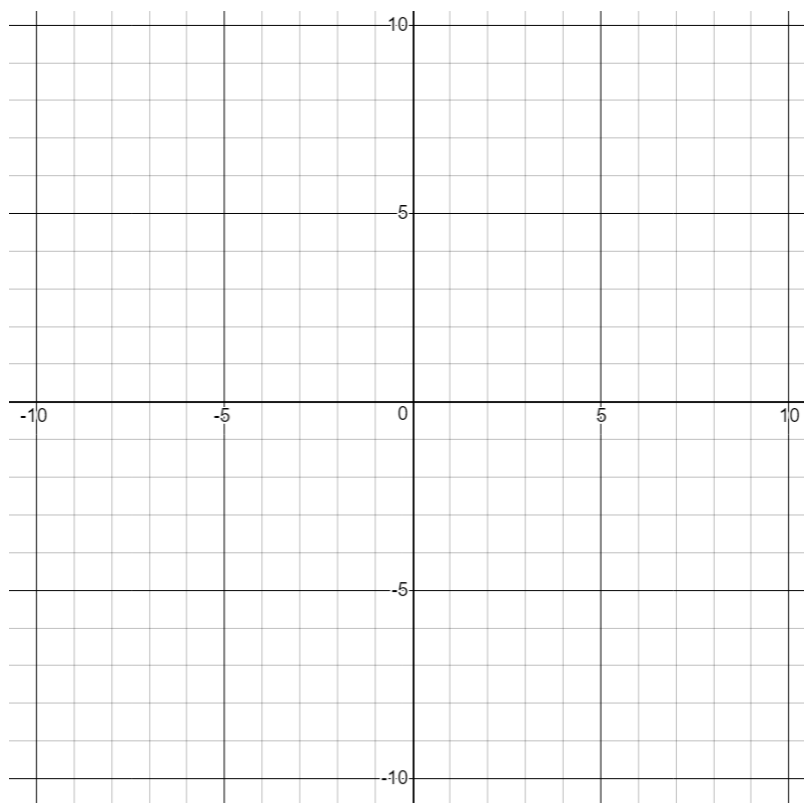
## 1 & 2 Variable Inequalities Extensions

- 1) On the unusual desk calendar the day is indicated simply by arranging the two cubes so that their front faces give the date. The face of each cube bears a single digit, 0 through 9, and one can arrange the cubes so that their front faces indicate any date 01, 02, 03... to 31. What numbers are on each cube to make this possible?



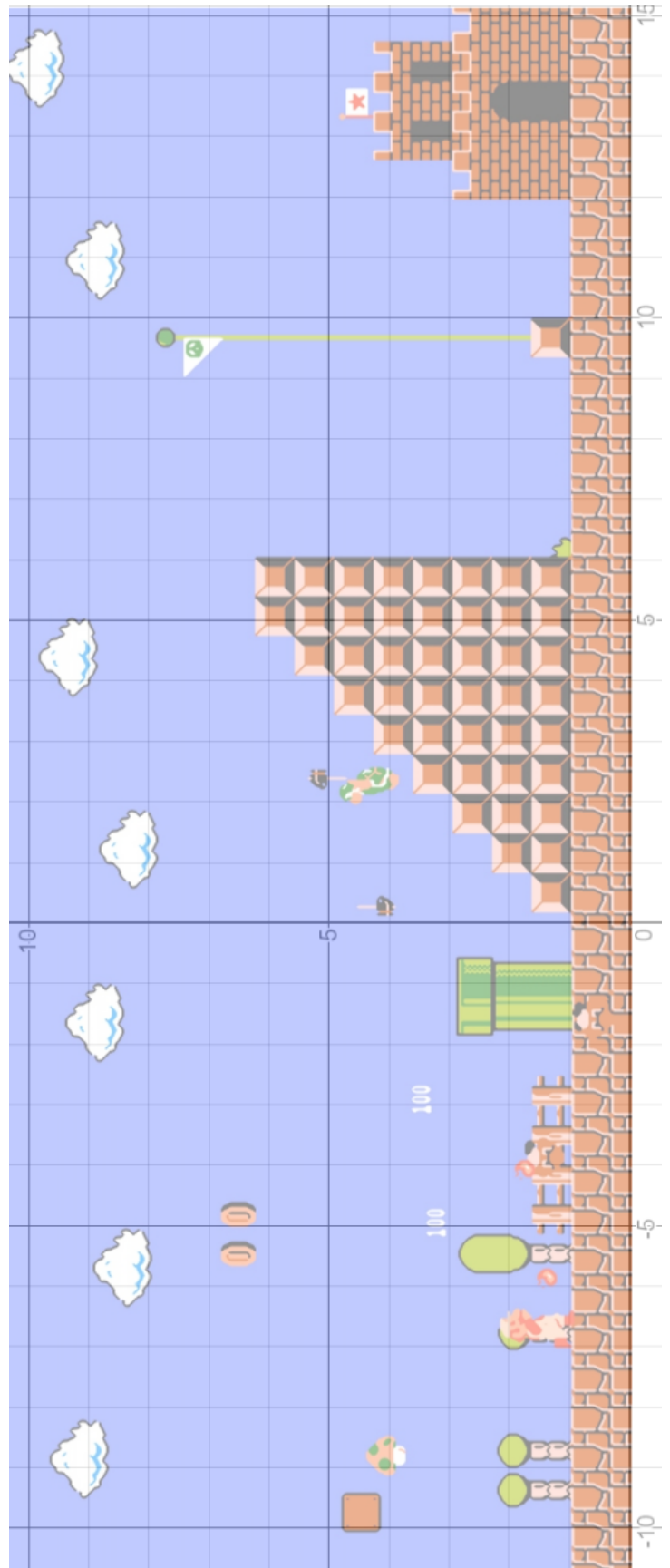
- 2) Part 1: On the graph below create a stop sign shape where the center of the stop sign is the only part not shaded.

Part 2: List the 8 linear inequalities that make that result in the graph you drew.



## 1 & 2 Variable Inequalities Extensions

- 3) Come up with four linear inequality that describes the location (approximately) of the triangular tower of blocks located just before the flag.
- 4) If Mario could shoot fireballs in a straight line, can you come up with the point slope equation that models the path of the fireball from his hand to the koopa with the hammer?
- 5) When you jump and hit the flagpole you get 5000 points for hitting the very top. You get 100 points for hitting the bottom. Create an equation where I could give you the y-value of Mario when he hits the flag and you give me the points he earns.



# One and Two Variable Inequalities Answers

## Assignment 1: Linear Inequalities

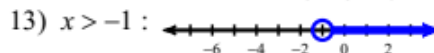
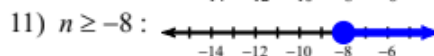
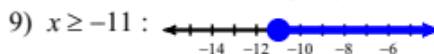
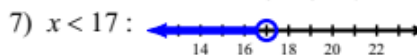
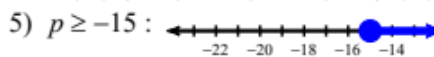
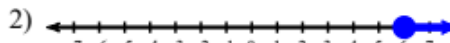
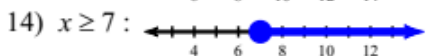
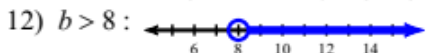
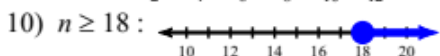
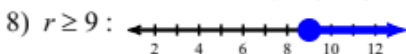
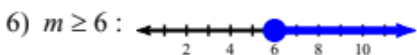
- 1) Infinite solutions      2) 4      3) 4; it separates the solutions from all of the non-solutions  
 4) 2; it is not.      5) 3,5,10      6)  
 7) False



## Assignment 2: Solving Linear Inequalities

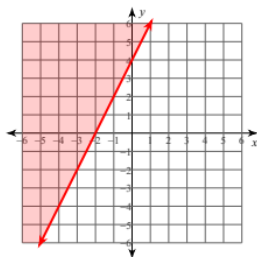


3)  $n \leq 0$       4)  $x \leq -5$

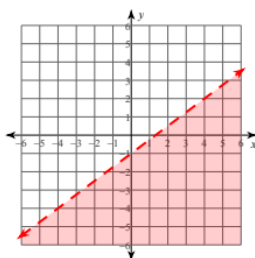


## Assignment 3: Graphing Two Variable Inequalities

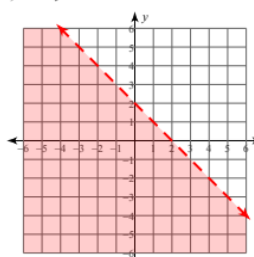
1)  $2x - y \leq -4$



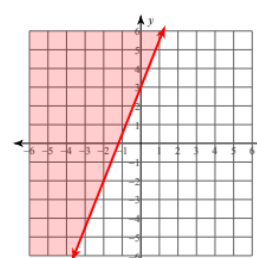
2)  $y < \frac{3}{4}x - 1$



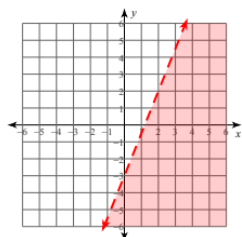
3)  $x + y < 2$



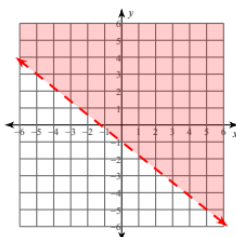
4)  $y \geq \frac{5}{2}x + 3$



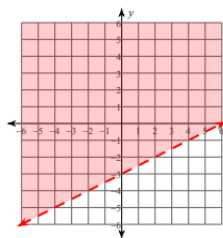
5)  $y < \frac{5}{2}x - 3$



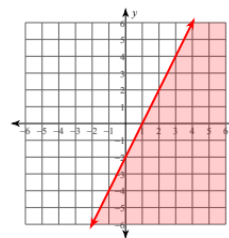
6)  $y > -\frac{4}{5}x - 1$



7)  $x - 2y < 6$

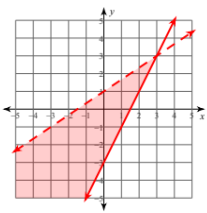


8)  $2x - y \geq 2$

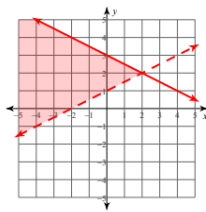


## Assignment 4: Graphing Systems of Inequalities

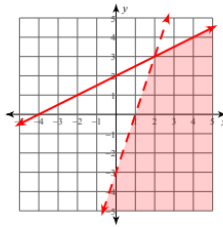
1)  $y \geq 2x - 3$   
 $y < \frac{2}{3}x + 1$



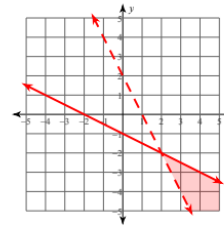
2)  $y > \frac{1}{2}x + 1$   
 $y \leq -\frac{1}{2}x + 3$



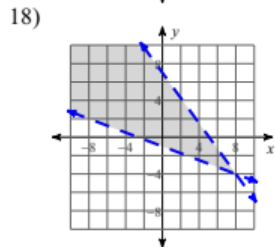
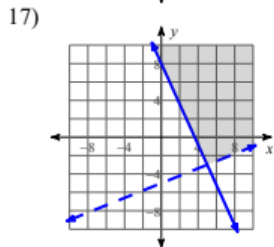
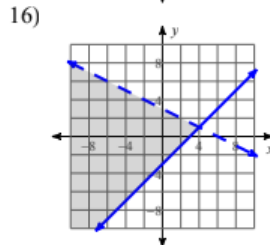
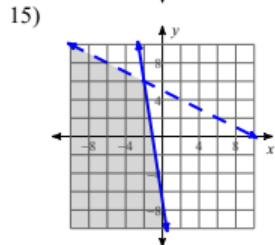
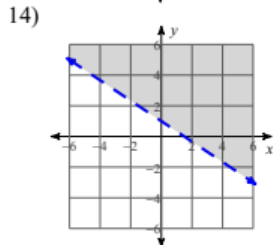
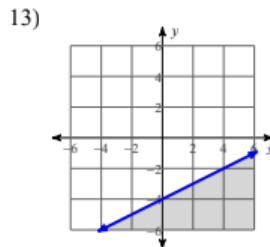
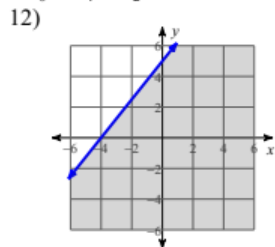
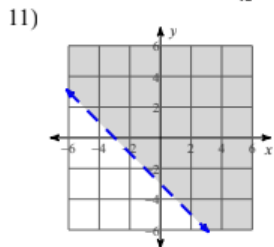
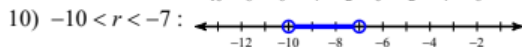
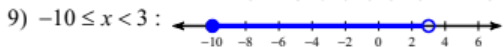
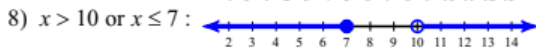
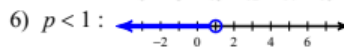
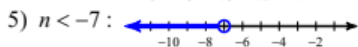
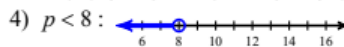
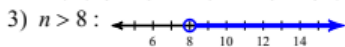
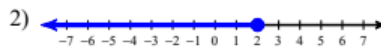
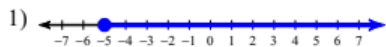
3)  $3x - y > 3$   
 $x - 2y \geq -4$



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



## Assignment 5: Practice Test





19)  $73 < 34 + 2.6x < 86$

20)  $125x + 9x \leq 56 + 12x$

Between 15 and 20 assignments.  
 23 games and greater

# WHY YOU NEED TO START SAVING NOW

The earlier you start to invest, the more wealth you can attain.

|   |   |
|---|---|
| <p><b>Meet Jack</b></p> <p>He starts saving for retirement when he's <b>18</b> and he completely stops contributing to his retirement account when he's <b>26</b></p>  | <p><b>Meet Jill</b></p> <p>She starts saving for retirement when she's <b>26</b> and she continues contributing to her retirement account until she's <b>65</b></p>  |
|---|---|

Jack saved **\$5,000** per year for **8** years which cost him a total of **\$40,000**



Jill saved **\$5,000** per year for **40** years which cost her a total of **\$200,000**

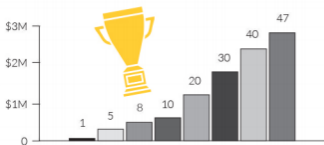


If they both earn an average of **10%** per year, who do you think ends up with a higher account value?

This is a hypothetical illustration meant to demonstrate the principle of compound interest and is not representative of past or future returns of any specific investment vehicle.

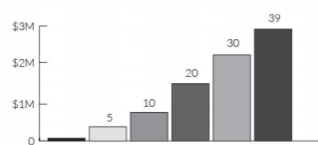
## THE POWER OF COMPOUNDING

Jack's Retirement Plan



Jack ends up with **\$2.5M**

Jill's Retirement Plan



Jill ends up with **\$2.2M**

Jill contributed **5x** more money and time than Jack and ended up with about **\$300,000** less.

### BUT WHY?

Jack's money had **47** years to grow because he started saving at **18**.  
 Jill's money only had **39** years because she started saving at **26**.

- Ric Edelman