

## Part I: Multiple Choice

The same equation has been represented in many different ways below. For questions 1-4 decide if each representation is:

a) *Slope-Intercept form*

b) *Standard form*

c) *Neither*

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

\_\_\_\_\_ 2.  $y - \frac{1}{3}x = -6$

\_\_\_\_\_ 3.  $-3y + x = 18$

\_\_\_\_\_ 4.  $y = \frac{1}{3}(x - 3) + 5$

5. What is the y-intercept of the equation from questions 1 - 4?

a) (0, -6)

b) (-6, 0)

c) (18, 0)

d) (0, 18)

6. What is the x-intercept of the equation from questions 1 - 4?

a) (0, -6)

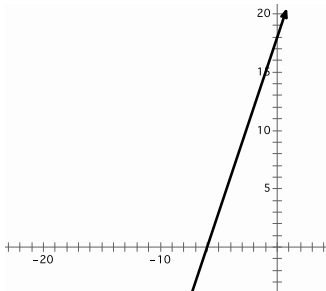
b) (-6, 0)

c) (18, 0)

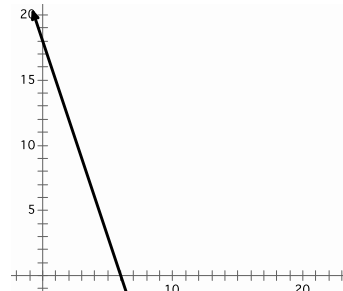
d) (0, 18)

7. Which graph best represents the equation from questions 1 - 4?

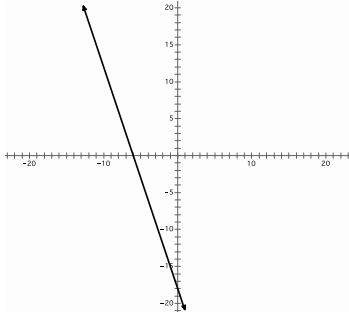
a)



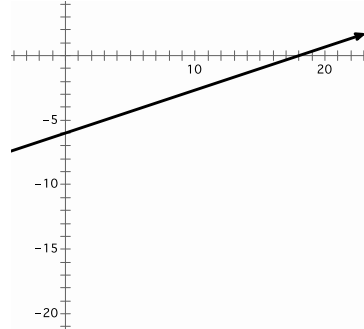
b)



c)



d)



## Part II: Free Response

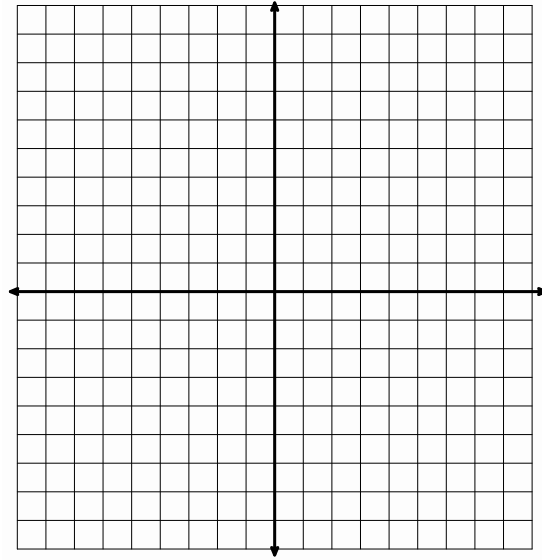
8. Find the x-intercept and y-intercept to the equation below

$$6x - 2y = 12$$

x-intercept: \_\_\_\_\_

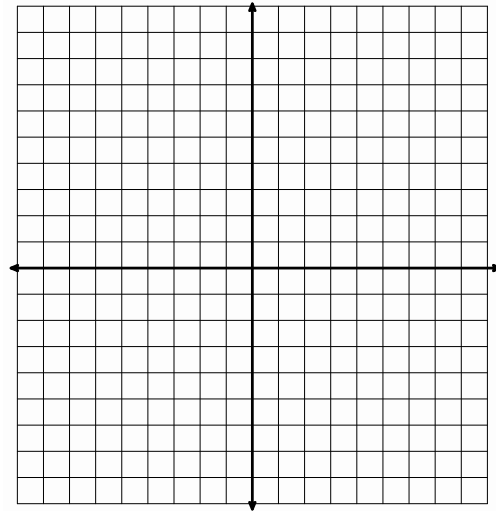
y-intercept: \_\_\_\_\_

9. Graph all of the solutions to the inequality  $4x - 2y \leq 14$



10. Solve the following system of equations using substitution, and then check your work by graphing the system of equations

$$\begin{cases} y = -2x - 3 \\ 4y + x = 16 \end{cases}$$

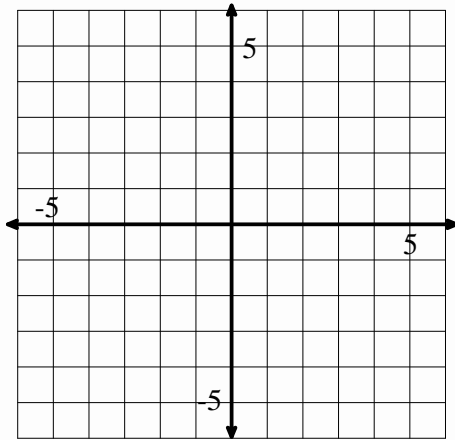


### Part III: Short Essay

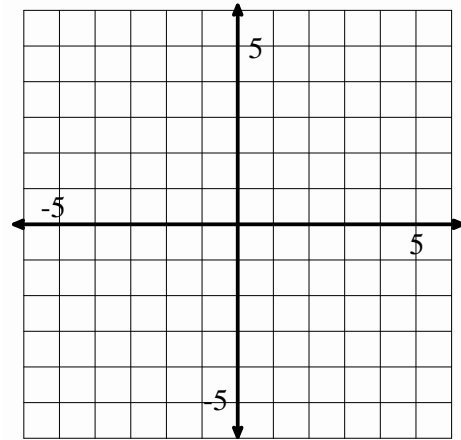
Explain how the solutions to the equation  $y = 4x - 5$  and the inequality  $y > 4x - 5$  are different. Be specific and use examples as well as graphs in order to receive full points.

[illegible]

### Graph 1



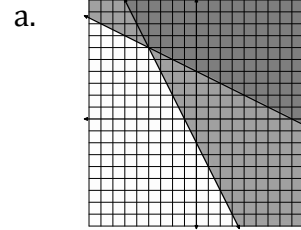
### Graph 2



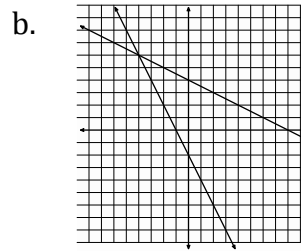
## Part I: Matching

Match each system on the left with the corresponding graph on the right.

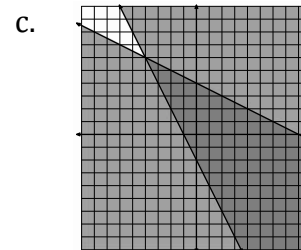
\_\_\_\_\_ 1.  $\begin{cases} x + 2y = 8 \\ -4x - 2y = 4 \end{cases}$



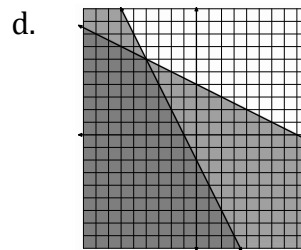
\_\_\_\_\_ 2.  $\begin{cases} x + 2y \leq 8 \\ -4x - 2y \leq 4 \end{cases}$



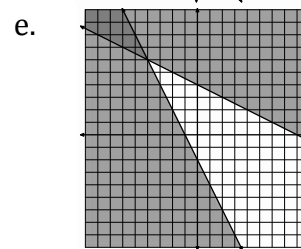
\_\_\_\_\_ 3.  $\begin{cases} x + 2y \leq 8 \\ -4x - 2y \geq 4 \end{cases}$



\_\_\_\_\_ 4.  $\begin{cases} x + 2y \geq 8 \\ -4x - 2y \leq 4 \end{cases}$



\_\_\_\_\_ 5.  $\begin{cases} x + 2y \geq 8 \\ -4x - 2y \geq 4 \end{cases}$



## Part II: Multiple Choice

6. The point  $(-4, 6)$  is a solution to which of the following system(s)?  
(Select all that apply)

a.  $\begin{cases} x + 2y = 8 \\ -4x - y = 10 \end{cases}$

b.  $\begin{cases} x + 2y \leq 8 \\ -4x - y < 10 \end{cases}$

c.  $\begin{cases} x + 2y < 8 \\ -4x - y \geq 10 \end{cases}$

d.  $\begin{cases} x + 2y \geq 8 \\ -4x - y \leq 10 \end{cases}$       e.  $\begin{cases} x + 2y > 8 \\ -4x - y > 10 \end{cases}$

7. The point  $(0, 0)$  is a solution to which of the following system(s)?  
(Select all that apply)

a.  $\begin{cases} x + 2y = 8 \\ -4x - y = 4 \end{cases}$       b.  $\begin{cases} x + 2y \leq 8 \\ -4x - y < 4 \end{cases}$       c.  $\begin{cases} x + 2y < 8 \\ -4x - y \geq 4 \end{cases}$   
d.  $\begin{cases} x + 2y \geq 8 \\ -4x - y \leq 4 \end{cases}$       e.  $\begin{cases} x + 2y > 8 \\ -4x - y > 4 \end{cases}$

8. How many solutions might a *linear equation* have?

a. None    b. One    c. Infinite    d. All of the above    e. None of the above

9. How many solutions might a *linear inequality* have?

a. None    b. One    c. Infinite    d. All of the above    e. None of the above

10. How many solutions might a *system of equations* have?

a. None    b. One    c. Infinite    d. All of the above    e. None of the above

11. How many solutions might a *system of inequalities* have?

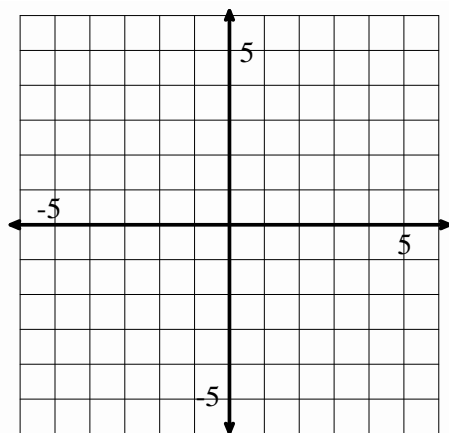
a. None    b. One    c. Infinite    d. None and Infinite are both possible    e. None of the above

12. Which of the following is a solution to the inequality  $y > 3x - 9$ ?  
(Choose all that apply)

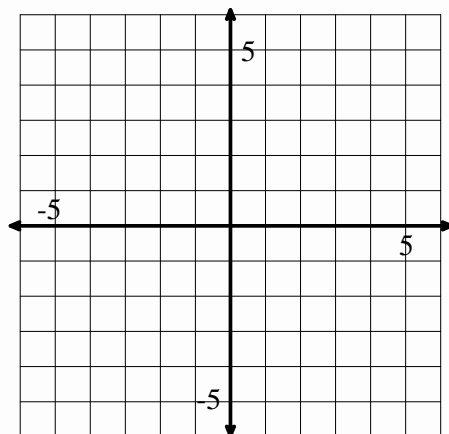
a.  $(-1, -13)$     b.  $(0, -9)$     c.  $(1, -6)$     d.  $(-3, -4)$     e.  $(0, 0)$

**Part III: Short Answer**

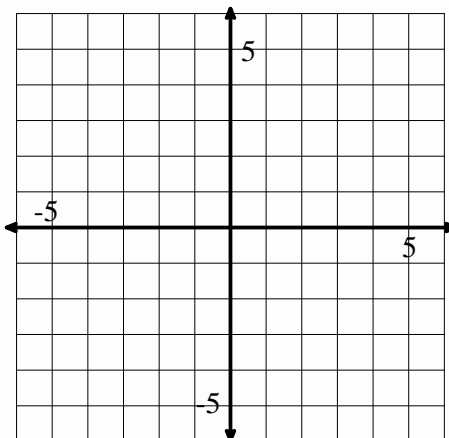
13. Show all possible solutions to the equation  $3x - 4y = 12$  on the graph below.  
Label the x-intercept and y-intercept.



14. Show all possible solutions to the inequality  $-6x + 2y > 12$  on the graph below.



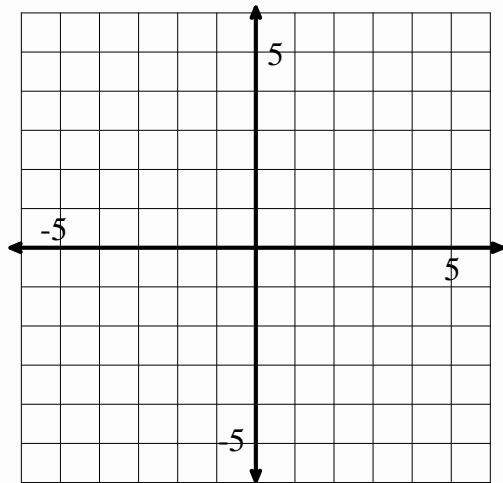
15. Show all possible solutions to the system of inequalities  $\begin{cases} -x + 2y > 2 \\ -2x + y \leq -5 \end{cases}$  on the graph below.



16. Solve the following system of equations using 2 methods of your choosing. A graph has been provided in case you have chosen that method, though you do not have to use it.

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

Graphing



Substitution

Elimination

17. Find the x-intercept and the y-intercept of the following equation. Write your answers as ordered pairs.

$$6x - 4y = 48$$

x-intercept: \_\_\_\_\_ y-intercept: \_\_\_\_\_

18. Convert the following Standard Form equation to Slope-Intercept Form.

Standard Form

$$2x - 3y = 6$$



Slope-Intercept Form

19. Convert the following Standard Form equation to Slope-Intercept Form.

Slope-Intercept Form

$$y = -\frac{4}{5}x + 7$$



Standard Form