SYSTEMS OF INEQUALITIES

Agenda

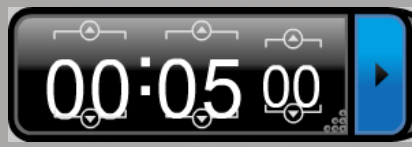
Warm-Up
HW Check
Notes p. 85
Stations
Homework
- Practice #1-4

Reminders
- Test Friday
- All Unit 6 HW due Friday
- Test Corrections due Fri

Essential Question
How do I find possible solutions to a system of inequalities?

Have your homework out ready to check!

Warm-Up



1. Without graphing, explain why the point (2,-2) is not a solution to the system of inequalities

$2x + y > 2$ and $x - y \geq 4$

$2(2)+(-2)>2$

$2>2$

X

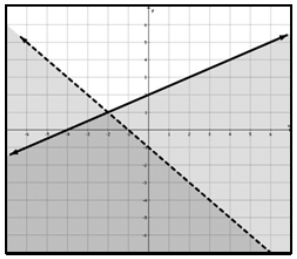
Questions, Comments, Concerns?

Algebra I - Unit 6: Topic 2

Practice – Systems of Inequalities pp 421-426

Name _____ Date _____ Period _____

1. State which points are solutions to the system of inequalities graphed below.



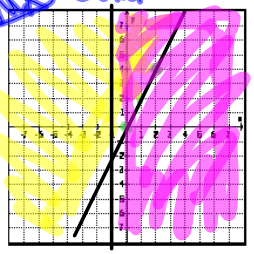
		Yes or No
A.	(0, 0)	_____
B.	(-3, 0)	_____
C.	(-1, -5)	_____
D.	(1, -2)	_____

2. Is (2, -3) a solution of the system of inequalities $8 \geq 2x - y$ and $2y < -4x - 2$?

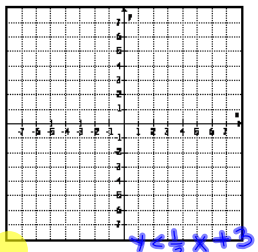
SOLVE FOR Y

Solve each by graphing, then name one point that lies in the solution area.

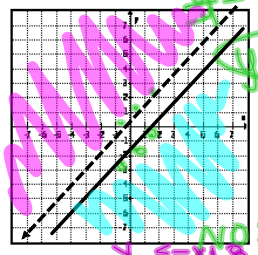
3. $y \geq 2x$
   $x \geq -1$
   solid, up; HOY; solid



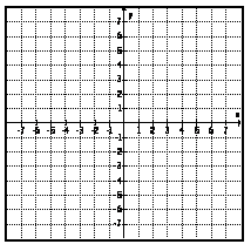
4. $y < x - 1$
   $y \leq 2x + 1$



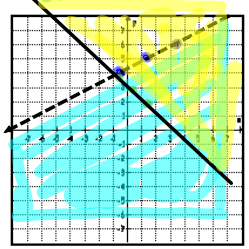
5. $y > x$
   $x - y \geq 3$
   dotted up, down; $-x - y \geq 3$; $-y \geq -x + 3$; $y \leq x - 3$; solid down; NO solution



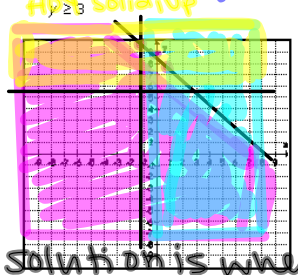
6. $y \geq x + 1$
   $4x + 5y \geq 20$



7. $x - 2y > -6$
   $2x + 2y \geq 5$
   $y \leq \frac{1}{2}x + 3$ dotted, down; $y \geq -x + 2.5$ solid, up



8. $x + y \leq 8$
   $x \geq 0$
   $y \geq 3$
   YUX; solid, down; solid, right; HOY; solid, up

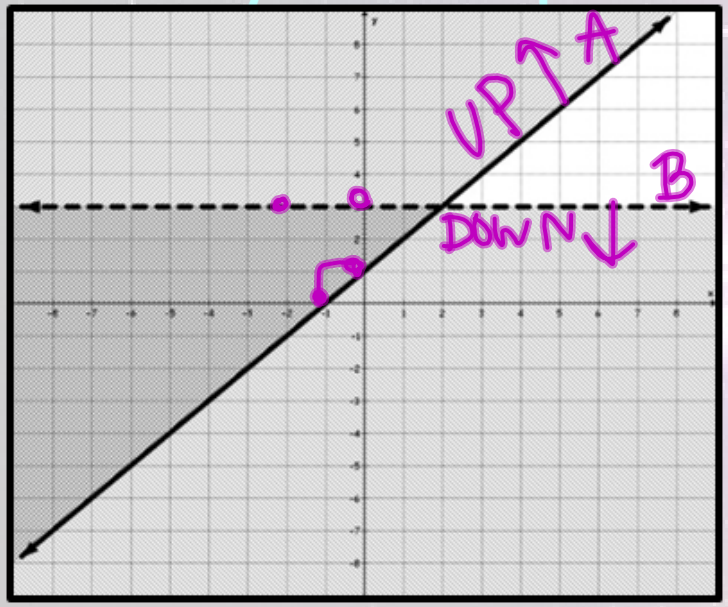


Solution is where ALL are Shaded!

Systems of Inequalities p. 85

Essential Question How do I find possible solutions to a system of inequalities?

1. Write a system of inequalities for the graphs below:



A: $y \geq 1x + 1$

B: $y < 0x + 3$

$(y < 3)$

$y = mx + b$

slope y int.

- pretty points

$\frac{RISE}{RUN}$

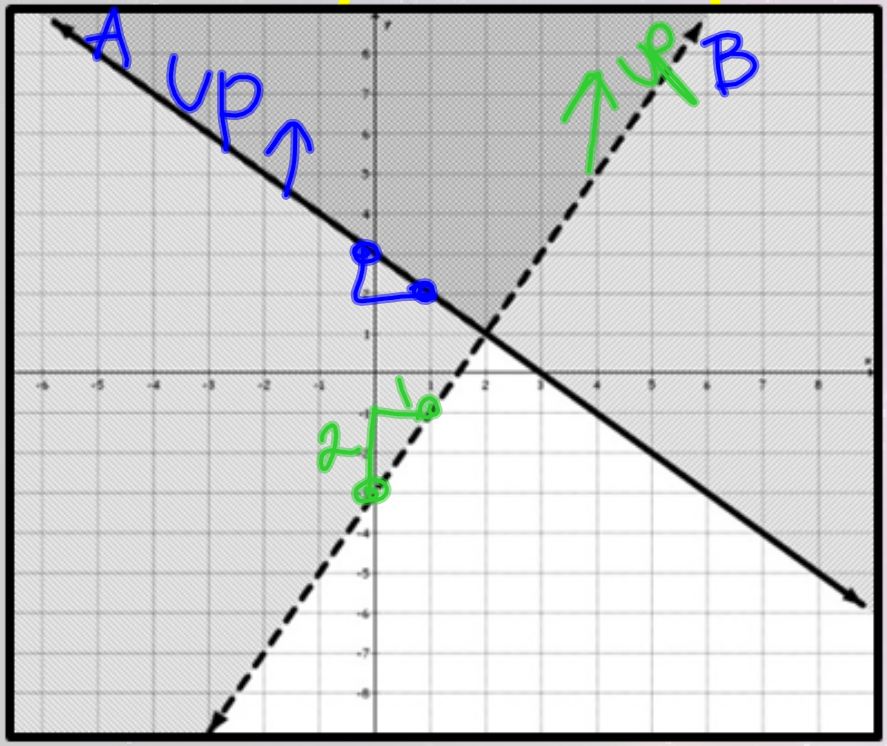
STEPS

1) Pick a line.
2) Decide shading
   up or down
   $>$ $<$
3) solid or dotted (line)
4) Find b
5) Find m.
6) Repeat for 2nd line

Systems of Inequalities p. 85

Essential Question How do I find possible solutions to a system of inequalities?

2. Write a system of inequalities for the graphs below:



A: $y \geq -1x + 3$

B: $y > 2x - 3$

Systems of Inequalities p. 85

Essential Question How do I find possible solutions to a system of inequalities?

3. For which point on the grid satisfies the conditions

$x \le -\frac{13}{2}$ and $y \ge \frac{1}{2}x + 5$

$X \le -6.5$

$?5 \ge \frac{1}{2}(-7)+5$

$5 \ge 3\frac{1}{2}$

$5 \ge 1.5$

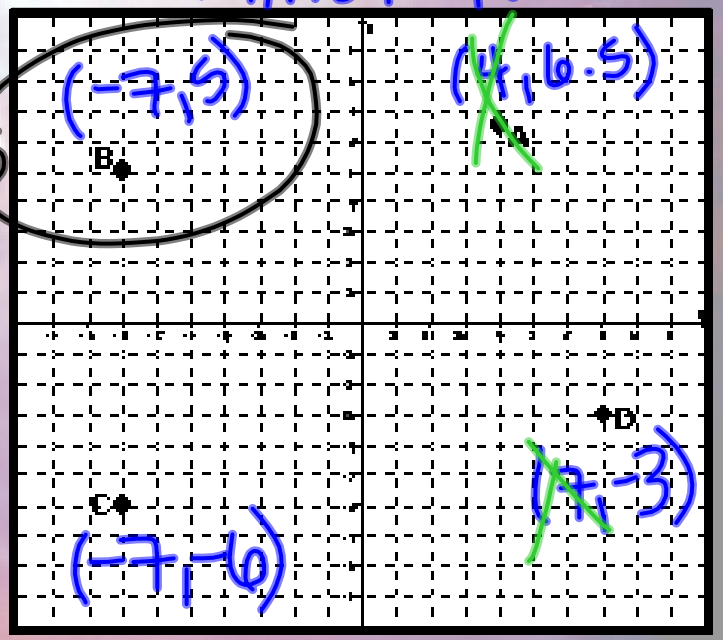
A. Point A

B. Point B

C. Point C

D. Point D

NAME POINTS



Systems of Inequalities p. 85

Essential Question How do I find possible solutions to a system of inequalities?

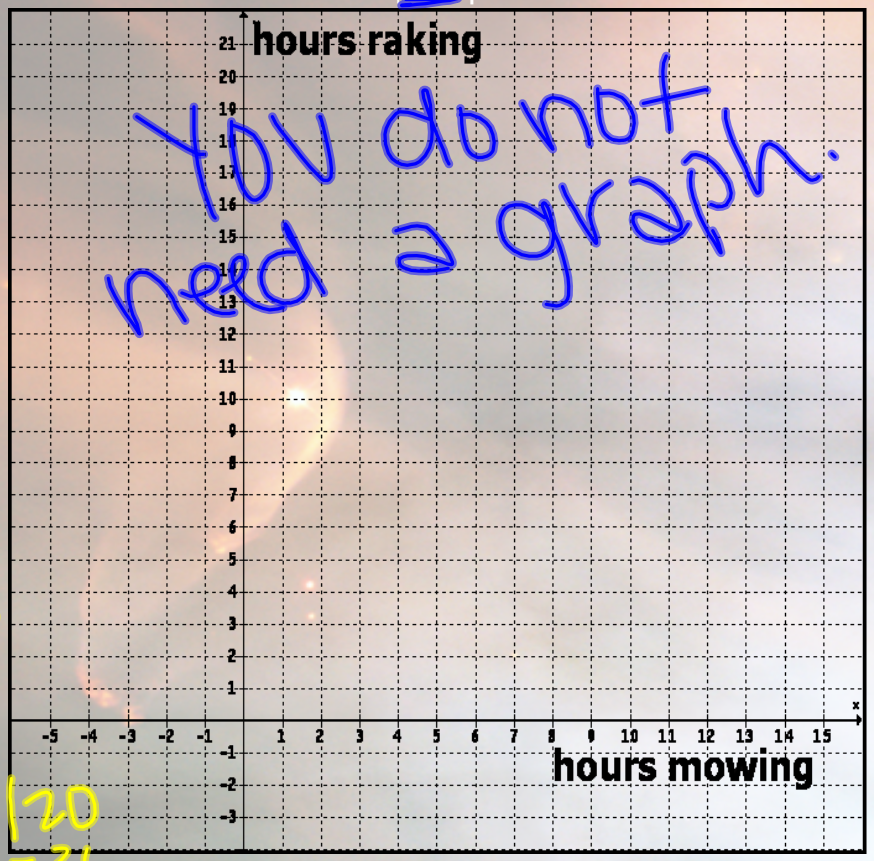
4. Jamal makes $12 an hour mowing yards and $6 an hour raking leaves. He cannot work more than 15 hours per week. Write and graph the two inequalities that Jamal can use to determine how many hours he needs to work at each job if he wants to earn at least $120 per week.

Let x be hours mowing

Let y be hours raking

$12x + 6y \geq 120$

$x + y \leq 15$



You do not need a graph.

If Jamal decides to mow for 11 hours, what is the maximum number of hours he could rake?

$x = 11$

4 hours

If Jamal decides to rake for 6 hours, what is the minimum number of hours he would need to mow?

$y = 6$

$12x + 6(6) \geq 120$

$-36 \quad -36$

$12x \geq 84$

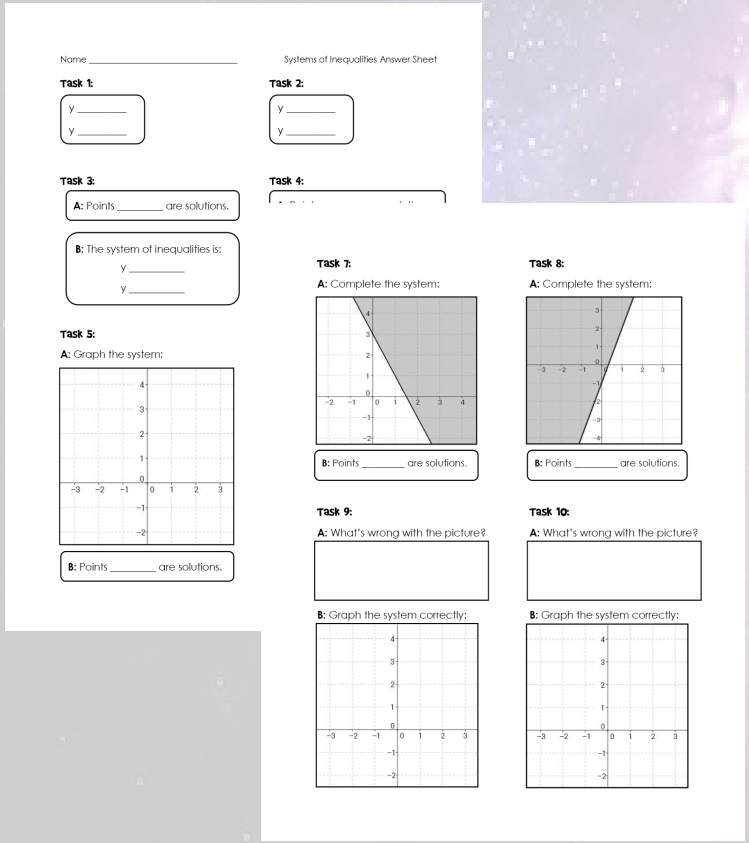
$\frac{12x}{12} \geq \frac{84}{12}$

7 hours

Systems of Inequalities p. 85

Essential Question How do I find possible solutions to a system of inequalities?

You will complete each of the task cards, filling out the answer document. Due by the end of the period!


Name _____ Systems of Inequalities Answer Sheet

Task 1: y _____ y _____

Task 2: y _____ y _____

Task 3: A: Points _____ are solutions.

B: The system of inequalities is: y _____ y _____

Task 4:

Task 5: A: Graph the system:

B: Points _____ are solutions.

Task 7: A: Complete the system:

B: Points _____ are solutions.

Task 8: A: Complete the system:

B: Points _____ are solutions.

Task 9: A: What's wrong with the picture?

B: Graph the system correctly:

Task 10: A: What's wrong with the picture?

B: Graph the system correctly:

Directions:

Follow the directions on each task card.

If necessary, use scrap paper to work out your answers.

Record your final answers on your answer sheet.

Let's work with inequalities!

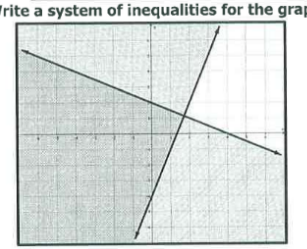
Algebra I - Unit 6: Topic 2 – Systems of Inequalities

Practice – Systems of Inequalities Day 2 **pp 421-426**

Name _____ Date _____ Period _____

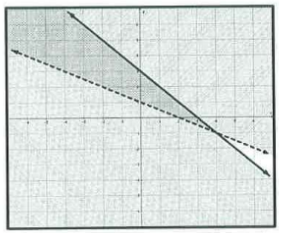
Write a system of inequalities for the graphs below.

1.



Inequalities

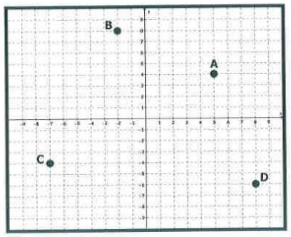
2.



Inequalities

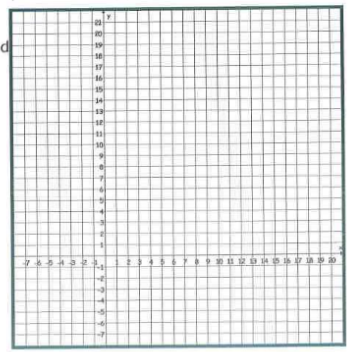
3. For which point is $y \geq -\frac{9}{2}$ and $x < -\frac{17}{5}$?

A. Point A
B. Point B
C. Point C
D. Point D



4. Jessica is buying hats for everyone invited to her birthday. The Party Store is selling party hats for $2 each and crowns for $5 each. Jessica expects no more than 20 people.

A) Write and solve (by graphing) the system of inequalities to find out how many party hats, x, and crowns, y, Jessica can buy if she does not want to spend more than $60.



B) Is the ordered pair (-5, 10) a solution to this situation?

C) Is the ordered pair (2.5, 8.5) a solution to this situation?

D) If Jessica decides to buy 9 party hats, what is the maximum number of crowns she can buy?

E) If Jessica decides to buy 6 crowns, what is the minimum and maximum number of party hats she can buy?

HW Help: Systems of Inequalities

Remember: the equation you put first doesn't matter.

1. $y \geq 3x - 4$ and $y \leq -\frac{1}{2}x + 2$

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

3. Which point has a x coordinate less than -3.4 and a y coordinate greater than -4.5?

4. Doesn't need a graph!

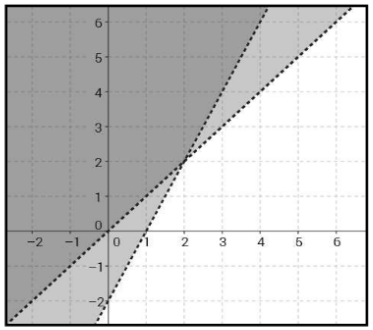
$x + y \leq 20$

$2x + 5y \leq 60$

Plug in the ordered pairs (x is party hats and y is crowns) to see what works. Be careful with MAXIMUM and MINIMUM!

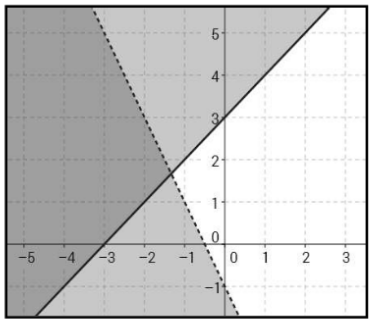
Task 1:

Can you write the system of inequalities?



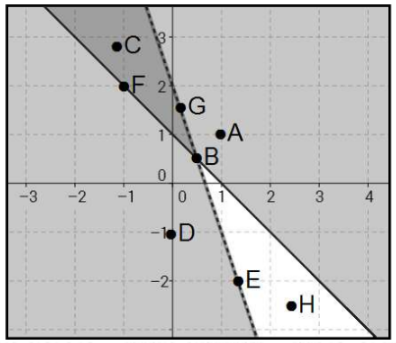
Task 2:

Can you write the system of inequalities?



Task 3:

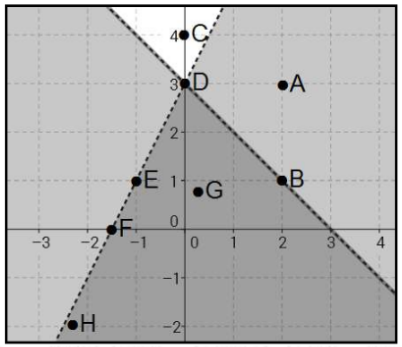
A: Which points are solutions to the system?



B: Can you write the system?

Task 4:

A: Which points are solutions to the system?



B: Can you write the system?

Task 5:

A: Graph the system of inequalities on your answer sheet. (Remember, neatness counts! ☺)

$$y < 2x + 3$$
$$y \leq 2x$$

B: Which of the following points are solutions?

A: (0, 3) B: (3, 1) C: (1, 2) D: (1, 3)

Task 6:

A: Graph the system of inequalities on your answer sheet. (Remember, neatness counts! ☺)

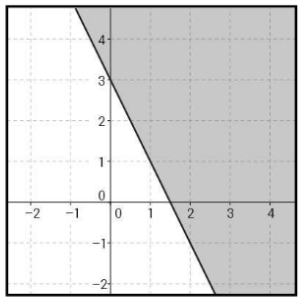
$$y > -x - 1$$
$$y \leq -4x - 2$$

B: Which of the following points are solutions?

A: (-2, 4) B: (1, 3) C: (-3, 5) D: (-2, 1)

Task 7:

A: Complete the system of inequalities by graphing **$y \leq 2x - 3$** on your answer sheet.

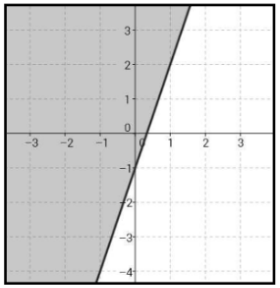


B: Which of the following points are solutions?

A: (2, -2)
B: (2, 1)
C: (1, 1)
D: (3, 2)

Task 8:

A: Complete the system of inequalities by graphing **$y > x - 1$** on your answer sheet.



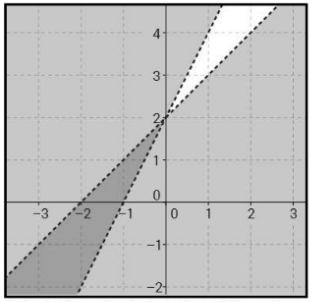
B: Which of the following points are solutions?

A: (0, 0)
B: (-1, -2)
C: (1, 2)
D: (-2, -2)

Task 9:

A: What's wrong with the picture?

B: Can you graph the system correctly?



Lily was asked to graph:

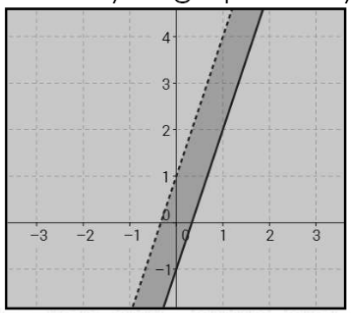
$y > x + 2$

$y \leq 2x + 2$

Task 10:

A: What's wrong with the picture?

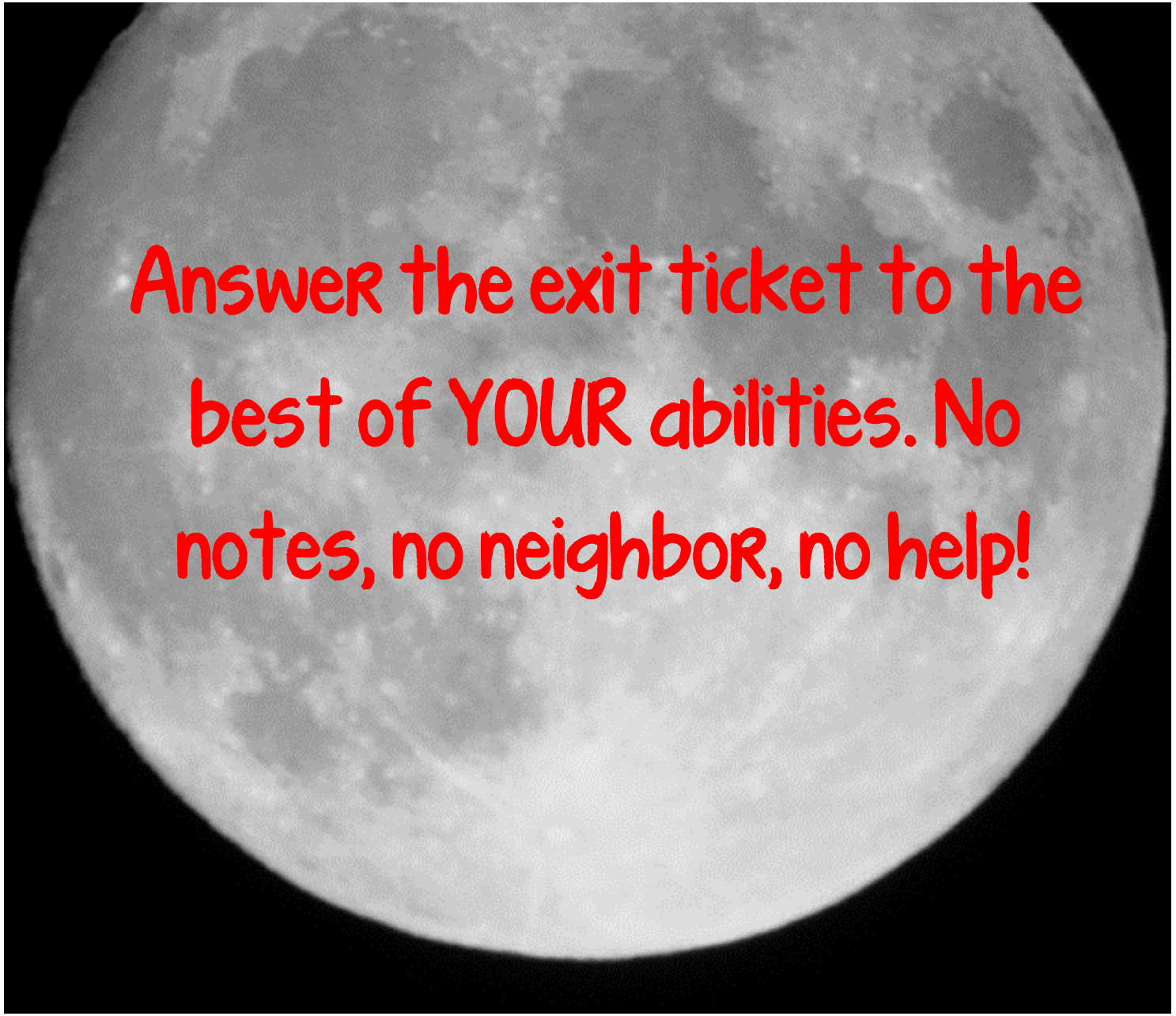
B: Can you graph the system correctly?



Ronie was asked to graph:

$y \geq 3x + 1$

$y < 3x - 1$


Answer the exit ticket to the best of YOUR abilities. No notes, no neighbor, no help!