Systems of Inequalities

Agenda

Warm-Up

Notes
- Systems of Inequalities

Homework
- Practice (1 page)

Objective:
You will find possible solutions to a system of inequalities.

Warm-Up

Chris wants to order DVDs over the internet. Each DVD costs $15.99 and shipping for the order costs $9.99. Chris has no more than $100 to spend.

1. Write an inequality that represents Chris' situation.

$15.99x + 9.99 \leq 100$

2. How many DVDs can Chris order without exceeding his $100 limit? Justify your answer mathematically.

p. 87 REVIEW

To graph a line you need a slope and a y-intercept

$y = mx + b$

GRAPHING INEQUALITIES

	Shade UP	Shade DOWN
Dotted	$>$	$<$
Solid	$\geq$	$\leq$

up

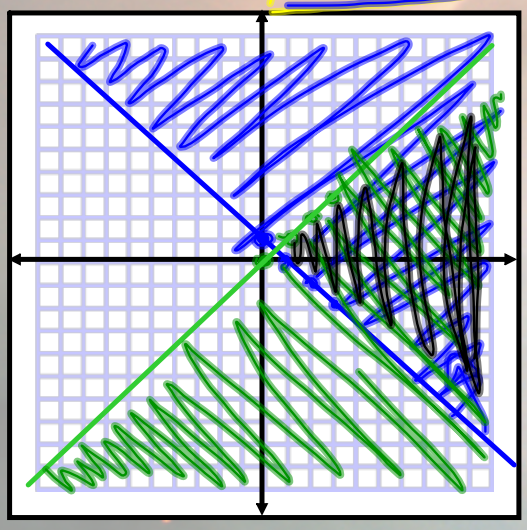
down

$\geq, \leq$

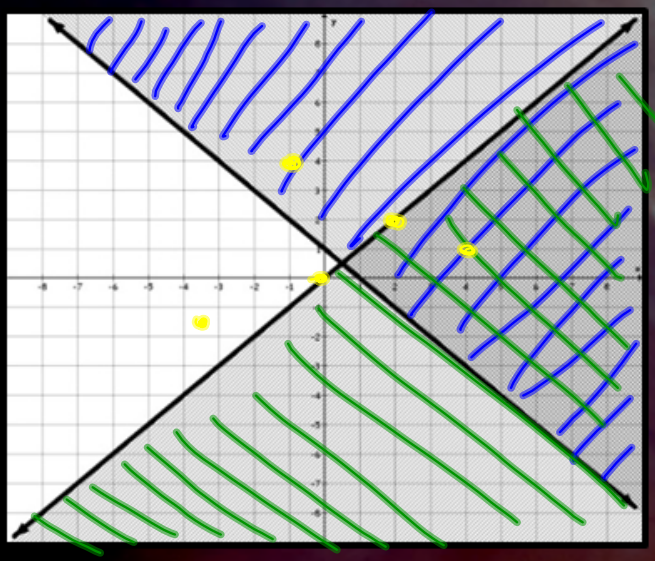
1. Graph the linear inequalities $y \geq -x + 1$ and $y \leq x$

SOLID/UP SOLID/DOWN

$m = -1$, $b = 1$ $m = 1$, $b = 0$

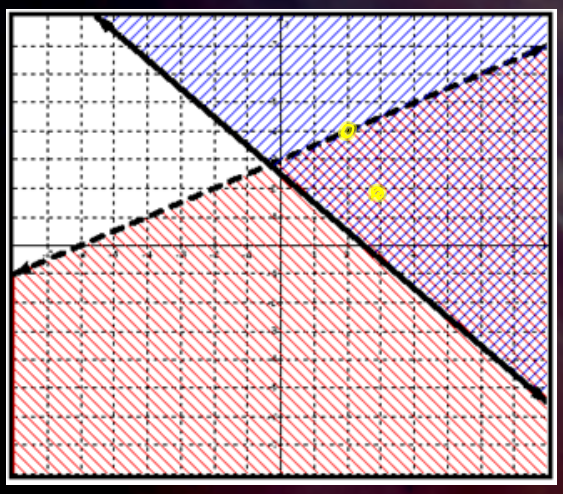


State which points are solutions to the system of inequalities graphed below.



		Yes or No
A.	(0, 0)	NO
B.	(2, 2)	YES
C.	(-1, 4)	NO
D.	(4, 1)	YES
E.	(-3.5, -1.5)	NO

2. Circle the ordered pairs that represent solutions to the system of inequalities to the left.



(-6, 5) (3, 2) (0, 4)

(0, 0) (1, -4) (2, 4)

Dotted line

3. Is (-3, 6) a solution of the system of inequalities $3y \geq -6x - 9$ $6 \leq 3x + y$

x y

$3(6) \stackrel{?}{\geq} -6(-3) - 9$

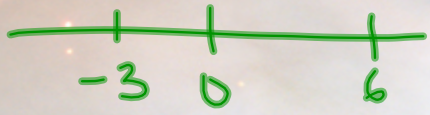
$18 \geq 9$ ✓

$6 \stackrel{?}{\leq} 3(-3) + 6$

$6 \leq -9 + 6$

$6 \not\leq -3$

NO



PLUG IT IN

4. Is (1,3) a solution of the system of inequalities

$$y > -4x + 1$$

$$y + 6 \geq 3x$$

$3 \stackrel{?}{>} -4(1) + 1$

$3 > -3$

✓

$3 + 6 \geq 3(1)$

$9 \geq 3$

✓

yes

PLUG IT IN

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

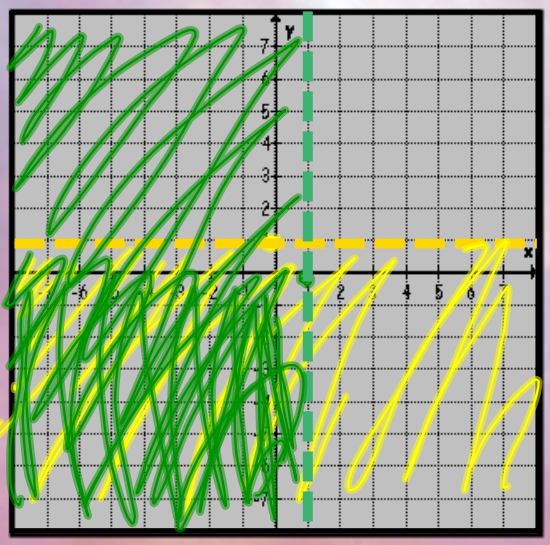
$y < 1$ Dotted | Down

$x < 1$ Dotted | Down (left)

m = 0
b = 1

HOY = (zero) slope horizontal

VUX = undefined vertical

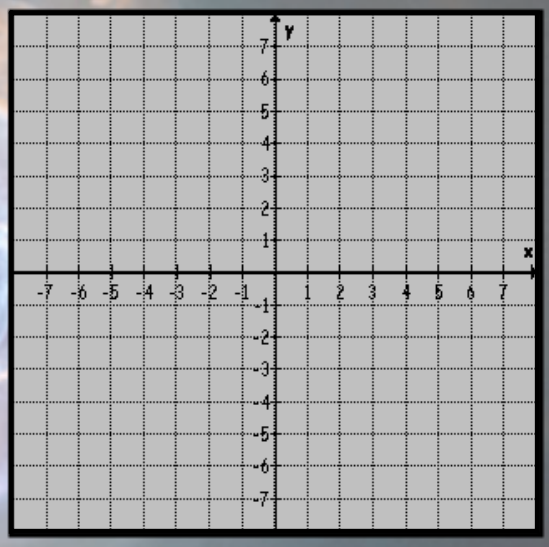


HOY VUX

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

$$y < 3$$

$$8x + 4y > 12$$



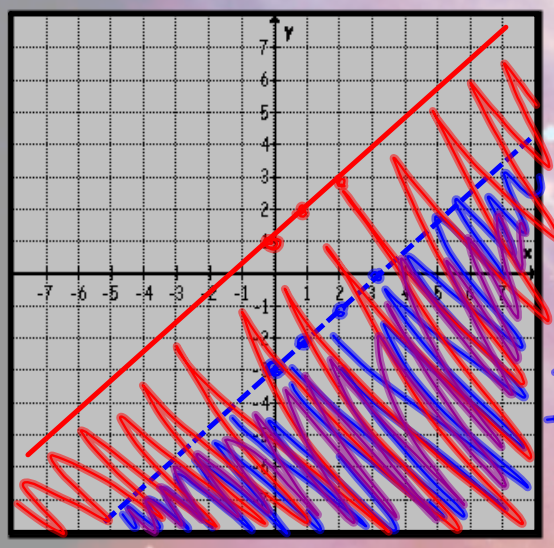
4. Solve each by graphing, then name one point that lies in the solution area.

$2x - 2y > 6$

$y - x \leq 1$

$y = mx + b$

SOLVE FOR Y.



$2x - 2y > 6$

$-2x \quad -2x$

$\frac{-2y}{-2} > \frac{-2x}{-2} + \frac{6}{-2}$

$y < x - 3$

Dotted Down

÷ by a neg., FLIP SIGN.

$y - x \leq 1$

$+x \quad +x$

$y \leq x + 1$

SOLID DOWN

- Notebooks
- Test corrections/Blitz makeups - must be done by THURSDAY
- Test Friday - all of unit 6 - possibility to raise your first test score
- ALL HW (4.1, 4.2, 4.3, 4.4, and 4.5) due Friday

Test Averages:

2nd - 72
3rd - 64
4th - 57
5th - 67
7th - 60

If you see an issue with your grade, please make note of it, then turn it back into your period's bin.

Tutoring Availability: Tues/Wed 4:15-5:00PM
Thurs 8:15-9:00 AM
All other times: you must make an appointment (by email)

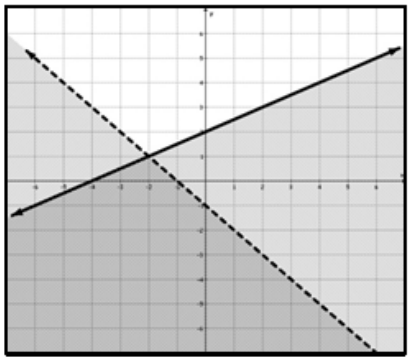
1 page

•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)	_____

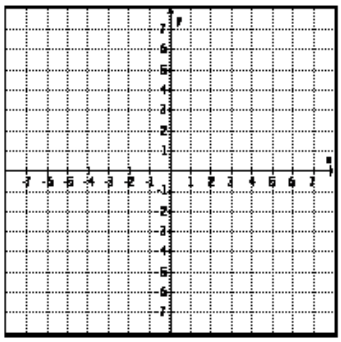
2. Is (2, -3) a solution of the system of inequalities $8 \geq 2x - y$ and $2y < -4x - 2$?

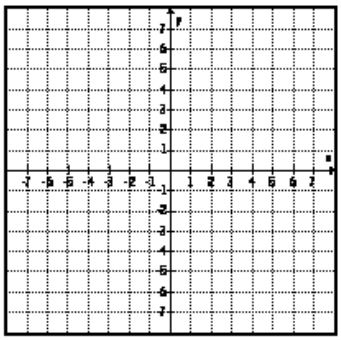
Solve each by graphing, then name one point that lies in the solution area.

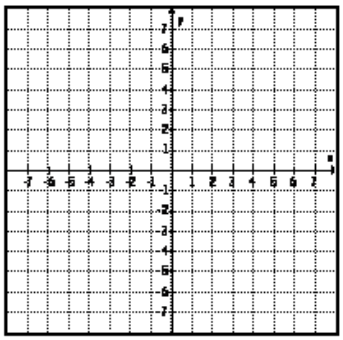
3. $y \geq 2x$
   $x \geq -1$

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

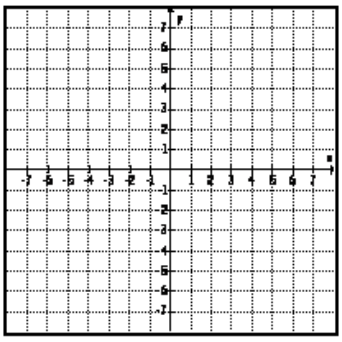
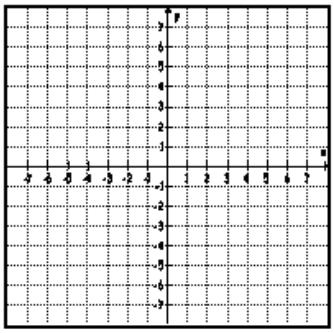
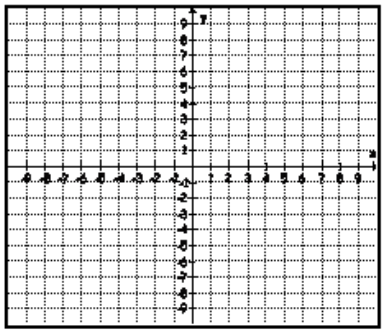
5. $y > x$
   $x - y \geq 3$







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

7. $x - 2y > -6$
   $2x + 2y \geq 5$

8. $x + y \leq 8$
   $x \geq 0$
   $y \geq 3$