

Algebra 1A Live Lesson

Unit 7, Lesson 6
System of Linear Inequalities
(Ch. 6-6 in textbook)



Agenda



1. Review topics and problems from Unit 7, Lesson 6 – System of Linear Inequalities (Chapter 6-6 in textbook)

2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

2-Column Notes Template



1. Announcements/To Do's
2. School-Wide Learner Outcomes
3. LL Objectives
4. Vocabulary words
5. Problems
6. Summary (End of class)

1. Write down important details.
2. What are you going to work on this week?
3. Write down the main idea of the lesson.
4. Definitions (fill in as we go)
5. Steps to solving problems
6. 1 or 2 sentences about the LL class.

Reminders and To – Do's



Information

1. Complete 1 math lesson per day.
2. Check your WebMail every day
3. Be prepared to spend 4 - 6 hours per day on schoolwork.
4. Remind your Learning Coach to take daily attendance

What to do

1. Go to your Planner in Connexus to find the math lesson for the day
2. Go to Connexus to find WebMail
3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's



Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

What to do

5. Link to Message Board:

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at:
<https://elizondo.youcanbook.me>

Send a WebMail

U7L6: California Common Core State Standards



- HSA-CED.A.3: Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
- HSA-REI.D.12: Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

U7L6 – Objectives



- Solve systems of linear inequalities by graphing

U7L6 – Vocabulary



- System of linear inequalities
- Solution of a system of linear inequalities

U7L6: Introduction



- A system of equations is made up of two or more linear equations
- A **system of linear inequalities** is made up of two or more linear inequalities
- A **solution of a system of linear inequalities** is an ordered pair that makes all the inequalities in the system true

U7L6: How to graph a system of linear inequalities on the coordinate plane



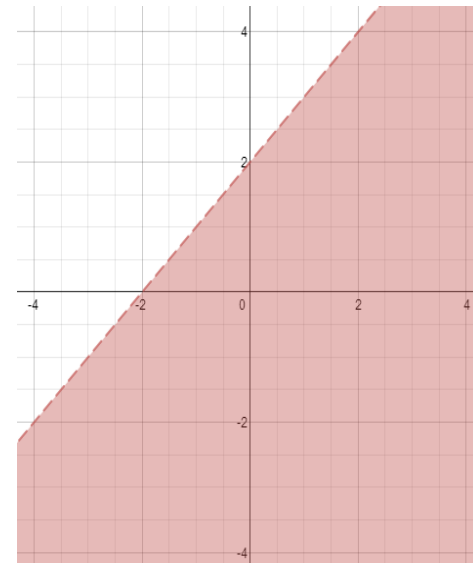
1. Graph the 1st linear equation (straight line)
2. Determine if the line is dotted ($<$ or $>$) or solid (\leq or \geq)
3. Use the $(0, 0)$ Test
 1. Plug 0 in for x and 0 in for y in the inequality.
 2. If $(0, 0)$ is a solution of the inequality, then shade the graph in the direction of $(0, 0)$.
 3. If $(0, 0)$ is NOT a solution of the inequality, shade the opposite direction of $(0, 0)$
4. Shade your 1st inequality
5. Repeat steps #1-4 for the 2nd inequality
6. Locate where the shadings intersect. This is where the solutions will be.

U7L6: Graphing Inequalities



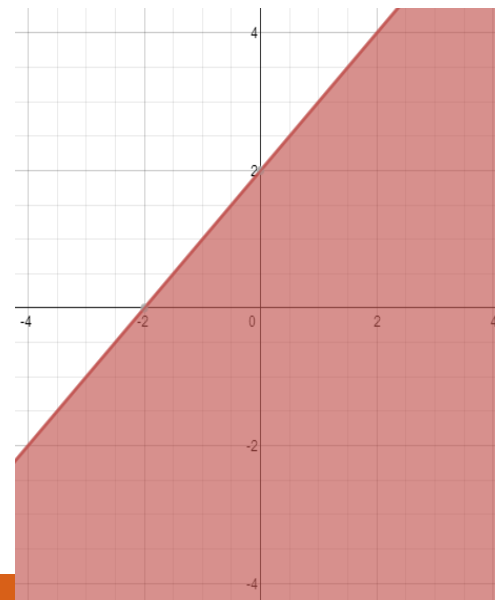
$< \text{ or } >$  Dotted lines

$$y < x + 2$$



$\leq \text{ or } \geq$  Solid lines

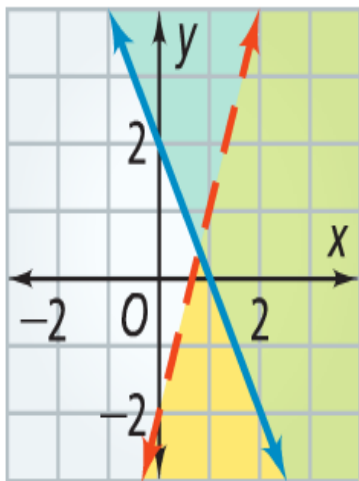
$$y \leq x + 2$$



U7L6: Review Problem



Write a system of inequalities for the graph:



Blue line

$$\text{slope} = \frac{-2}{1}$$

$$\text{y-intercept} = 2$$

$$y = -2x + 2$$

Equation of the line

$(0,0)$ Test

$$0 > -2(0) + 2$$

$$\mathbf{y \geq -2x + 2}$$

Red line

$$\text{slope} = \frac{3}{1}$$

$$\text{y-intercept} = -2$$

$$y = 3x - 2$$

Equation of the line

$(0,0)$ Test

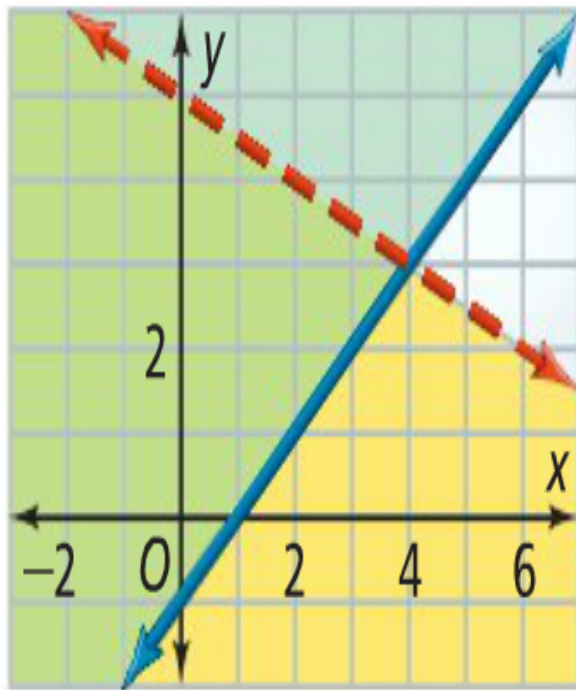
$$0 < 3(0) - 2$$

$$\mathbf{y < 3x - 2}$$

U7L6: Writing a System of Inequalities from a Graph



Write a system of inequalities for the graph:



$$y \geq x - 1$$

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

To write a system that is represented by the graph, write an inequality that represents the yellow region and an inequality that represents the blue region

Blue line

$$\text{slope} = \frac{1}{1} = 1$$

$$\text{y-intercept} = -1$$

Equation of the line

$$y = x - 1$$

$$y \geq x - 1 \quad \text{Solid line, shaded up}$$

Red line

$$\text{slope} = \frac{-1}{2} = -\frac{1}{2}$$

$$\text{y-intercept} = 5$$

Equation of the line

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

$$y < -\frac{1}{2}x + 5 \quad \text{Dotted line, shaded down}$$

U7L6: Writing a System of Inequalities from a Graph



Write a system of inequalities for the graph:



a) $x > 1$ and $y < -\frac{3}{2}x + 3$

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

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

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

Blue line

$$\text{slope} = \frac{-3}{2} = -\frac{3}{2}$$

$$\text{y-intercept} = 3$$

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

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

Dotted line,
shaded down

Red line

$$\text{slope} = \text{undefined}$$

Equation of the line

$$x = 1$$

$$x < 1$$

Dotted line,
shaded left

Questions?



- Any questions? Please type them in the chat pod.
- If you think of any questions later, WebMail or call me (559) 549-3244.