Algebra 1B Live Lesson

U1L5 – Review of Graphing and Systems of Linear Equations

CONNECTIONS ACADEMY®

Agenda

1. Review selected problems and topics from U1L5

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	1. Write down important details.
2. School-Wide Learner Outcomes	2. What are you going to work on this week?
3. LL Objectives	
4. Vocabulary words	4. Definitions (fill in as we go)
5. Problems	5. Steps to solving problems
6. Summary (End of class)	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

What to do

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.

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

California Common Core State Standards

- HSA-REI.D.11: Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

- HSA-REI.C.6: Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

- HSN-Q.A.1: Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

- HSA-REI.C.5: Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

- 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.

- 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.

U1L5 - Objectives

1. Graphing linear equations

2. Using substitution to solve a system of linear equations

3. Using elimination to solve a system of linear equations

4. Graphing a linear inequality

5. Solving a system of linear inequalities

Solve each system by graphing. Check your solution.

y = -3x + 2

3x + y = 1

$$y = -3x + 2 \quad y = -3x + 1$$

x	y
-1	5
0	2
1	-1

x	y
-1	4
0	1
1	-2
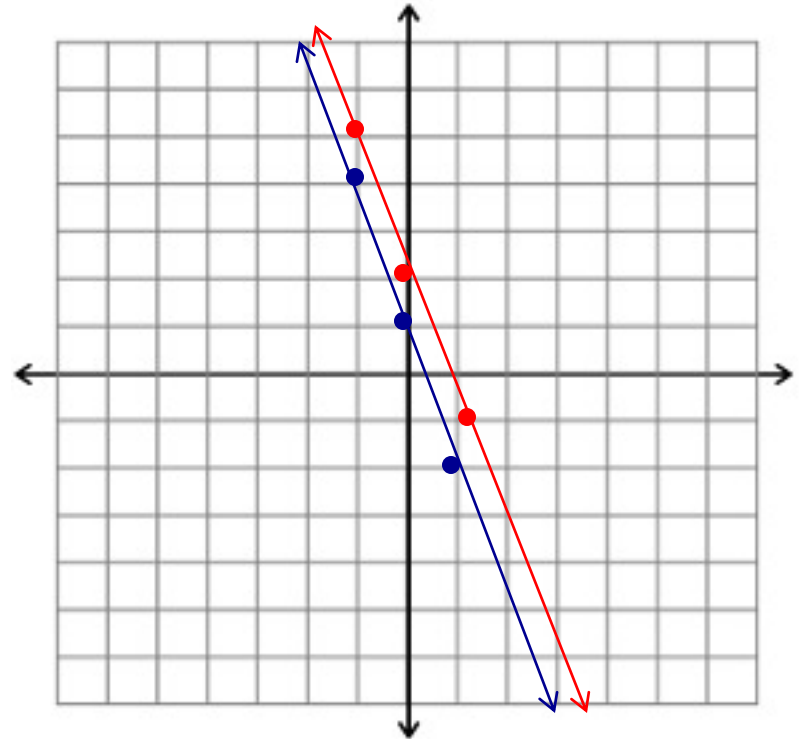
These lines are the parallel and will never meet.
Therefore, there are no solutions.

What is the solution of the system?

$$3y + 4x = 14$$
$$-2x + y = -3$$

$$4x + 3y = 14$$
$$-2x + y = -3 \quad -3(-2x + y) = -3(-3)$$
$$6x - 3y = 9$$

$$4x + 3y = 14$$
$$+ \quad 6x - 3y = 9$$
$$\overline{}$$
$$10x = 23$$
$$\frac{10x}{10} = \frac{23}{10}$$
$$x = 2\frac{3}{10} \text{ or } 2.3$$

$$-2(2.3) + y = -3$$
$$-4.6 + y = -3$$
$$-4.6 + 4.6 + y = -3 + 4.6$$
$$y = 1.6 \text{ or } 1\frac{3}{5}$$
$$\left(2\frac{3}{10}, 1\frac{3}{5}\right)$$

What is the solution of the system?

$$x - 3y = -7$$
$$2x = 6y - 14$$

$$2x - 6y = 6y - 6y - 14$$

$$2x - 6y = -14$$

$$\frac{2x}{2} - \frac{6y}{2} = \frac{-14}{2}$$

$$\boldsymbol{x - 3y = -7}$$

Both equations are the same. Infinite solutions.
(Red line + Blue line = Purple line)

U7L3: Solving a System by Multiplying One Equation

What is the solution of the system? Use elimination.

$$-2x + 15y = -32$$
$$7x - 5y = 17$$

$-2x + 15y = -32$
$7x - 5y = 17$

$3(7x - 5y = 17)$
$21x - 15y = 51$

$-2x + 15y = -32$
$+ \quad 21x - 15y = 51$

$19x = 19$

$\boldsymbol{x = 1}$

$\boldsymbol{(1, -2)}$

$7(1) - 5y = 17$
$7 - 5y = 17$
$7 - 7 - 5y = 17 - 7$
$-5y = 10$
$\dfrac{-5y}{-5} = \dfrac{10}{-5}$
$\boldsymbol{y = -2}$

Graph the linear inequality 3x – y ≥ 6.

$$3x - y \geq 6$$

$$3x - 3x - y \geq 6 - 3x$$

$$-y \geq -3x + 6$$
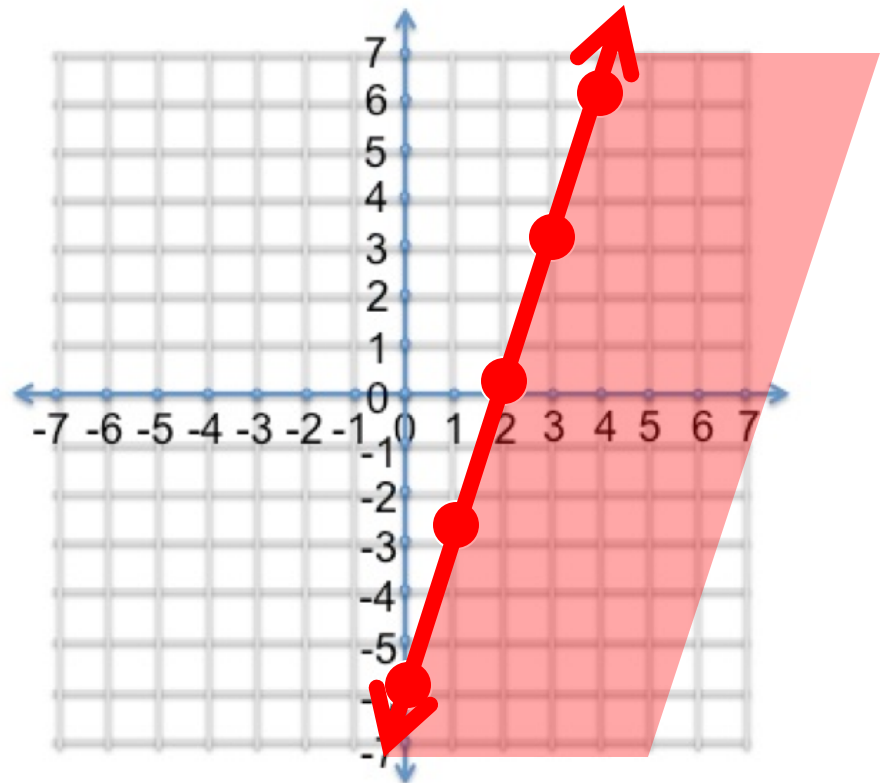
$$(-1) - y \geq (-3x + 6)(-1)$$

$$y \leq 3x - 6$$

Is (0,0) is a solution of the inequality?

$$0 \leq 3(0) - 6$$

$$0 \leq 0 - 6$$

$$0 \leq -6 \quad \text{No}$$

Shade to the right of the line

4) Write an inequality that represents the graph.

Find the slope: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$
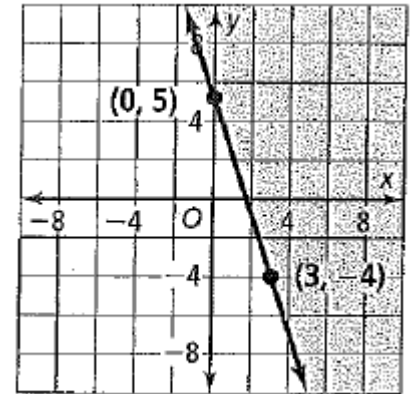
$m = \dfrac{-4 - 5}{3 - 0}$ $m = \dfrac{-9}{3}$ $m = -3$

y-intercept = 5

Equation of the line: $y = -3x + 5$

Is (0,0) is a solution of the inequality? No.
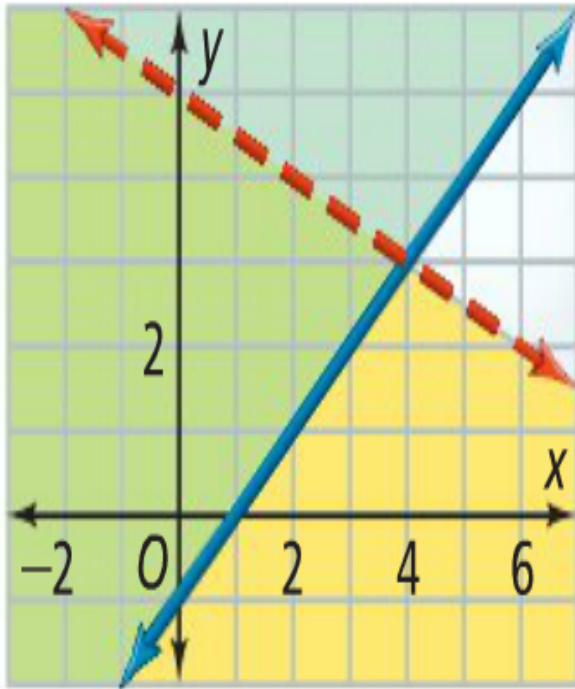
$$y \le 3x + 5$$

(0, 5)

(3, −4)

Write a system of inequalities for the graph:

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

Slope = 1

y-intercept = -1

Equation of the line

$$y = x - 1$$

Solid line: $\geq \, or \, \leq$

(0, 0) Test: (0, 0) is a solution

$$0 \geq 0 - 1$$

$$\boldsymbol{y \geq x - 1}$$

Red line

Slope = $\dfrac{-2}{4} = -\dfrac{1}{2}$

y-intercept = -5

Equation of the line

$$y = -\dfrac{1}{2}x - 5$$

Dotted line: > or <

(0, 0) Test: (0, 0) is a solution

$$0 > -\dfrac{1}{2}(0) - 5$$

$$\boldsymbol{y > \dfrac{1}{2}x - 5}$$

Questions?

- Check the Message Board first

- Send a WebMail

- You can also make an appointment at https://elizondo.youcanbook.me

- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.