4.2.A OUR LEARNING TARGET FOR TODAY IS:

We will learn how to solve and graph a linear INequality in TWO variables!

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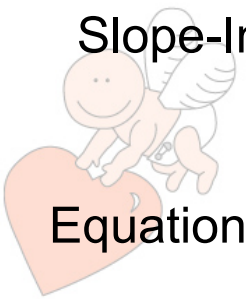

Slope-Intercept Review

Equation is: _____

m is the _____

b is the _____

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Write the equation in Slope-Intercept Form:

$-8 - y + 3x + 4 = x - 2y$

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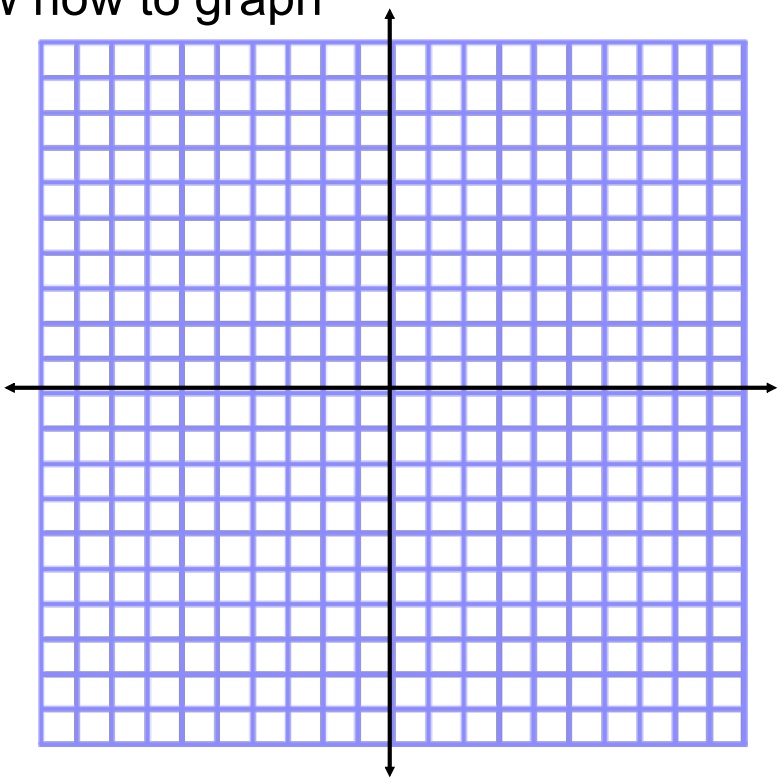
Let's review how to graph

$y = -2x + 4$



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Using www.desmos.com/flashcalc graphing calculator, try the following graphs:

1. $y = 2x + 1$
clear the screen
2. $y < 2x + 1$
clear the screen
3. $y \leq 2x + 1$
clear the screen
4. $y > 2x + 1$
clear the screen
5. $y \geq 2x + 1$

Then try These...

1. $y = -1/2\ x - 3$
clear the screen
2. $y < -1/2\ x - 3$
clear the screen
3. $y \leq -1/2\ x - 3$
clear the screen
4. $y > -1/2\ x - 3$
clear the screen
5. $y \geq -1/2\ x - 3$

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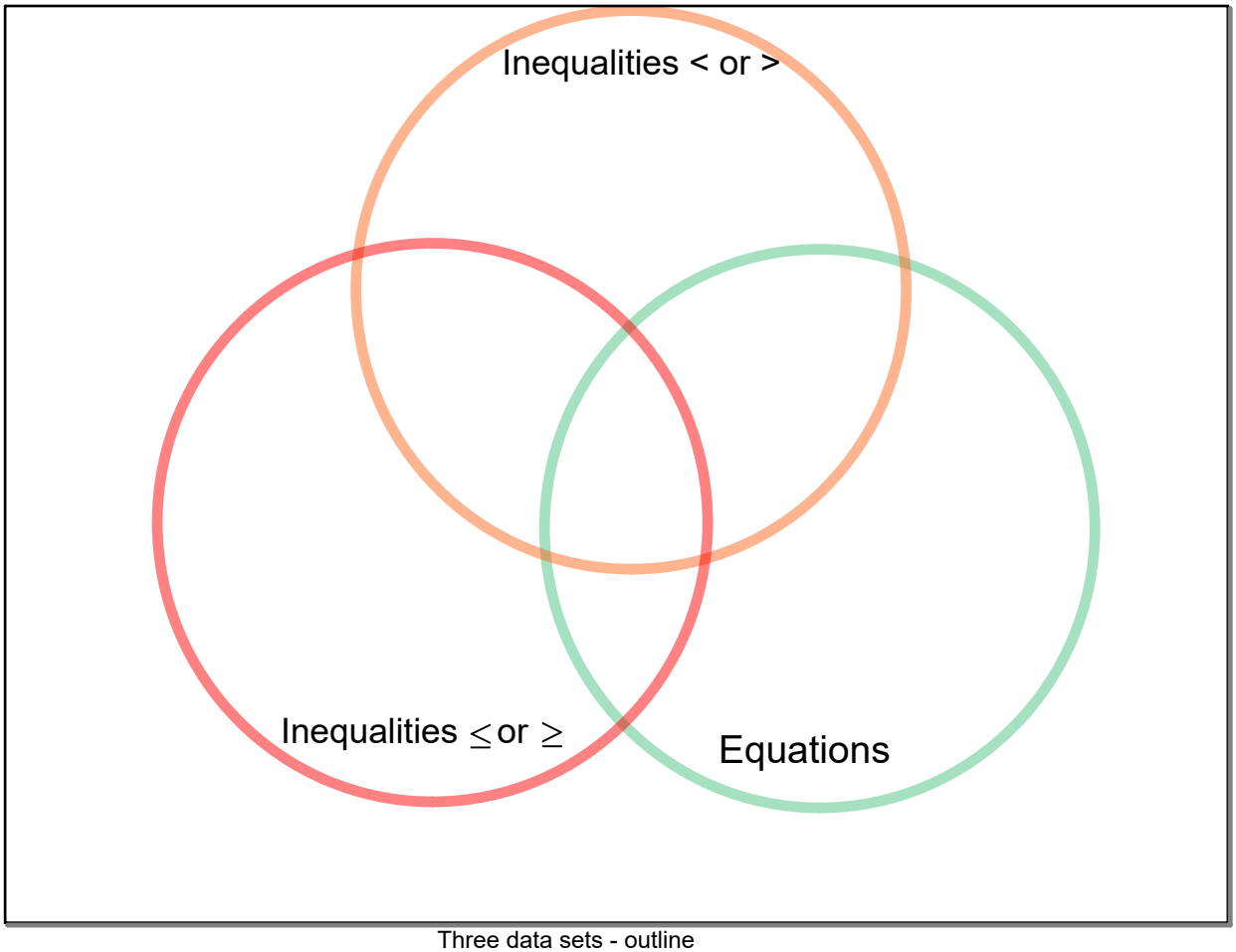

Three data sets - outline

4.2.A Graphing a Linear Inequality in two variables

Steps:

1. Graph the corresponding equation (use slope-intercept form).

Use a dashed line for $<$ or $>$

Use a solid line for $\leq$ or $\geq$

2. The line you drew separates the coordinate plane into two **half-planes**. Test a point in one of the half-planes to find whether it is a solution of the inequality.

3. If the test point IS a solution, shade the half-plane it is in. IF NOT, shade the other half-plane.

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4.2.A Graphing a Linear Inequality in two variables

Solutions that are Included look like:

Points that are NOT Included in our solutions look like:

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Graph: $y < 2x + 1$

1. Replace the symbol with an = sign

2. Graph the boundary line.

m=

b=

3. Line - solid or dashed?

4. Test.

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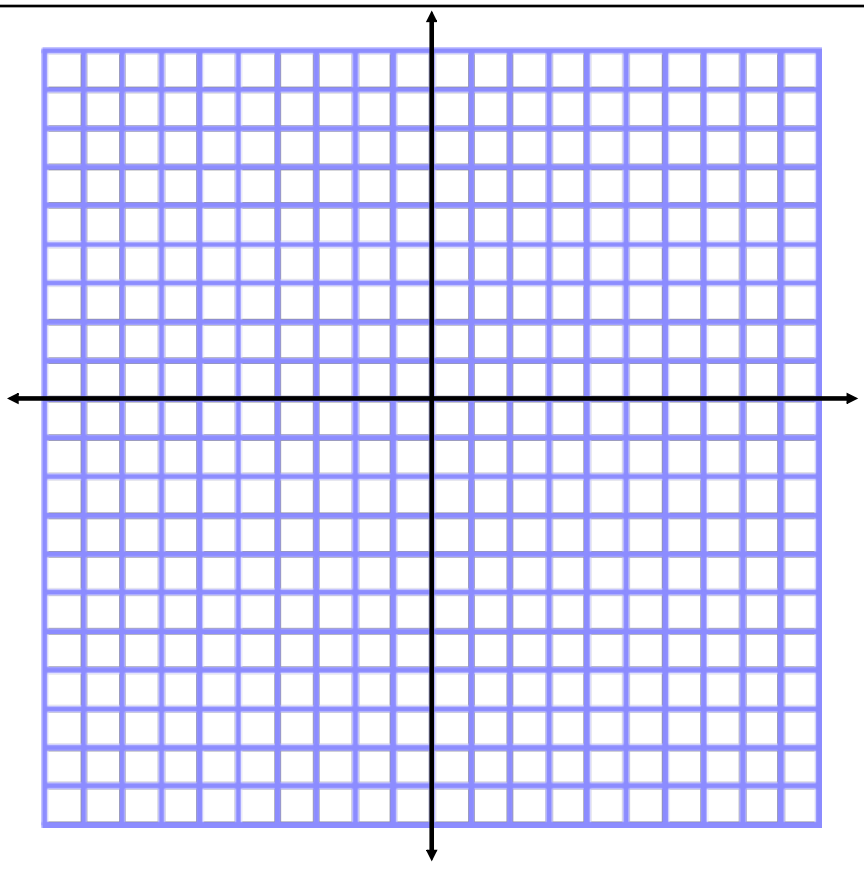

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Example:

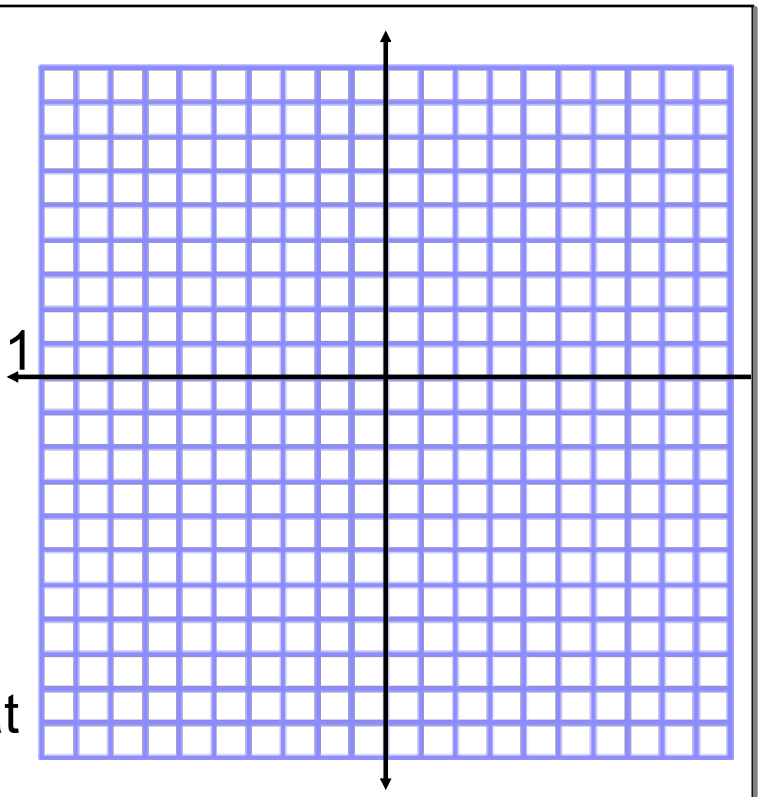
Graph: $y < 2x + 1$

1. Graph $y = 2x + 1$

m =

b=

We have a less than symbol. What does that tell us about our line?



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Example:

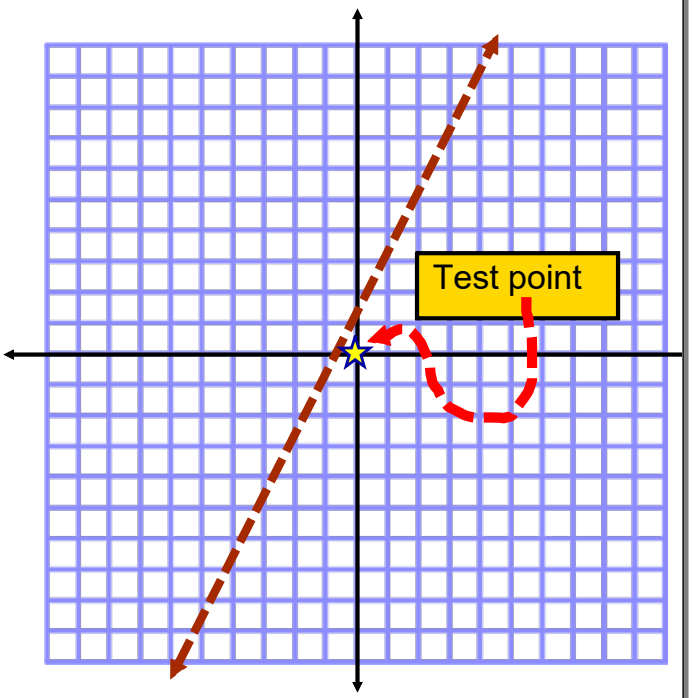
Graph: $y < 2x + 1$

2. To determine which side to shade, test a point. (0,0) is an easy test point.

T or F $0 < 2(0)+1$

$0 < 1$

TRUE!



Still not done...

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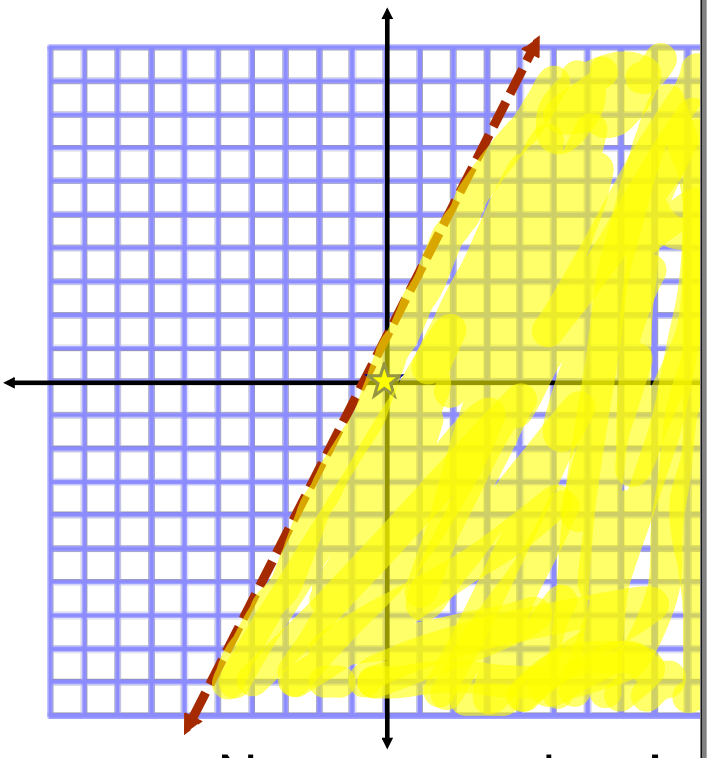
Example:

Graph y < 2x +1

3. Shade the side that includes the point (0,0)



Now we are done!

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Practice Problem

y > 2x - 5

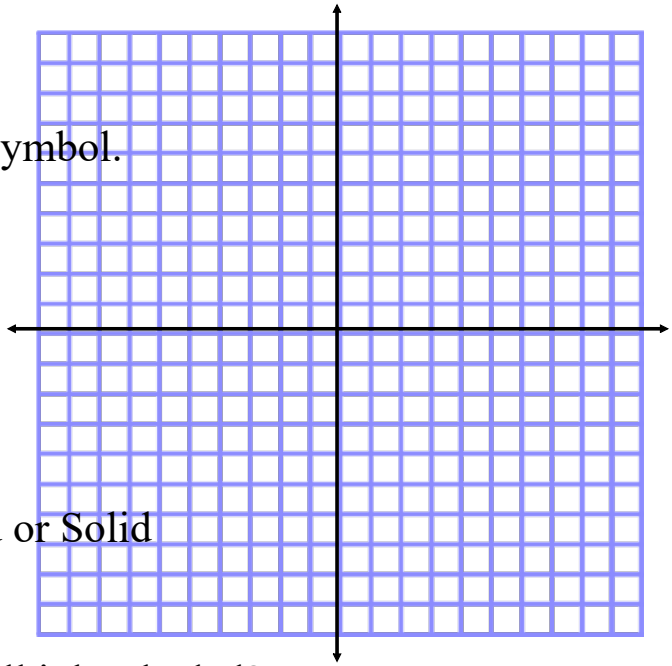
1. Replace the symbol.

2. Graph

m=

b=

3. Line: Dashed or Solid



4. Test. How will it be shaded?

(,)

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Graph the following inequality:

$$y > 3x - 4$$

1. Replace the symbol.

2. Graph

m=

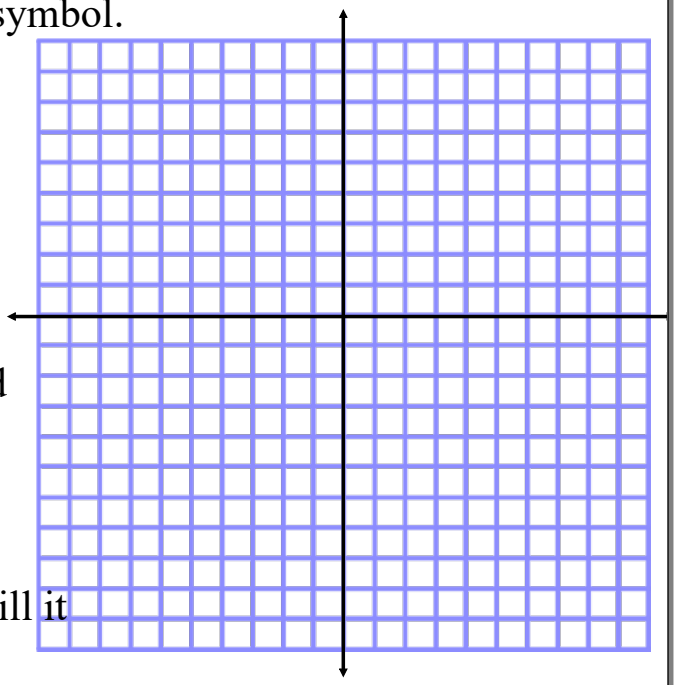
b=

3. Line: Dashed

or Solid

4. Test. How will it

be shaded? (,)



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Let's graph this inequality.....is it in slope intercept form?

$$y + 3 \geq 2/3\ x + 4$$

1. Replace the symbol.

2. Graph

m=

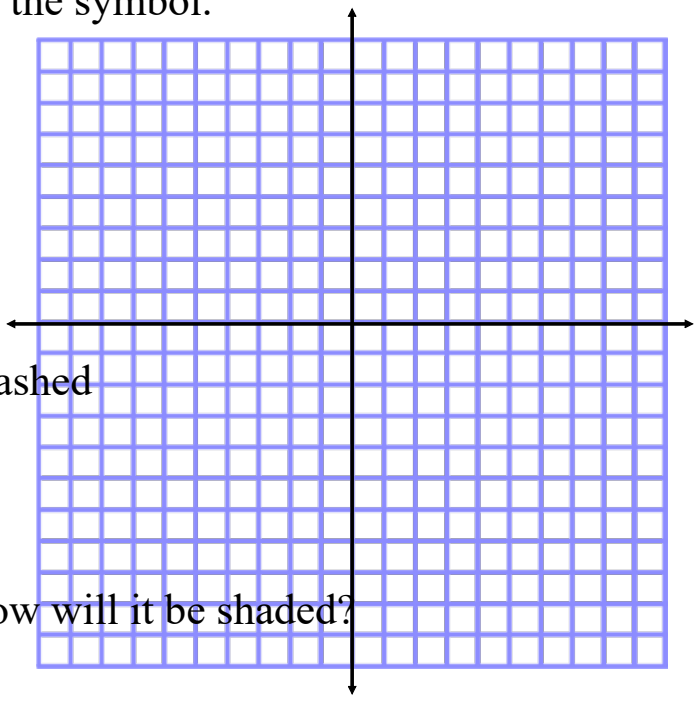
b=

3. Line: Dashed

or Solid

4. Test. How will it be shaded?

(,)



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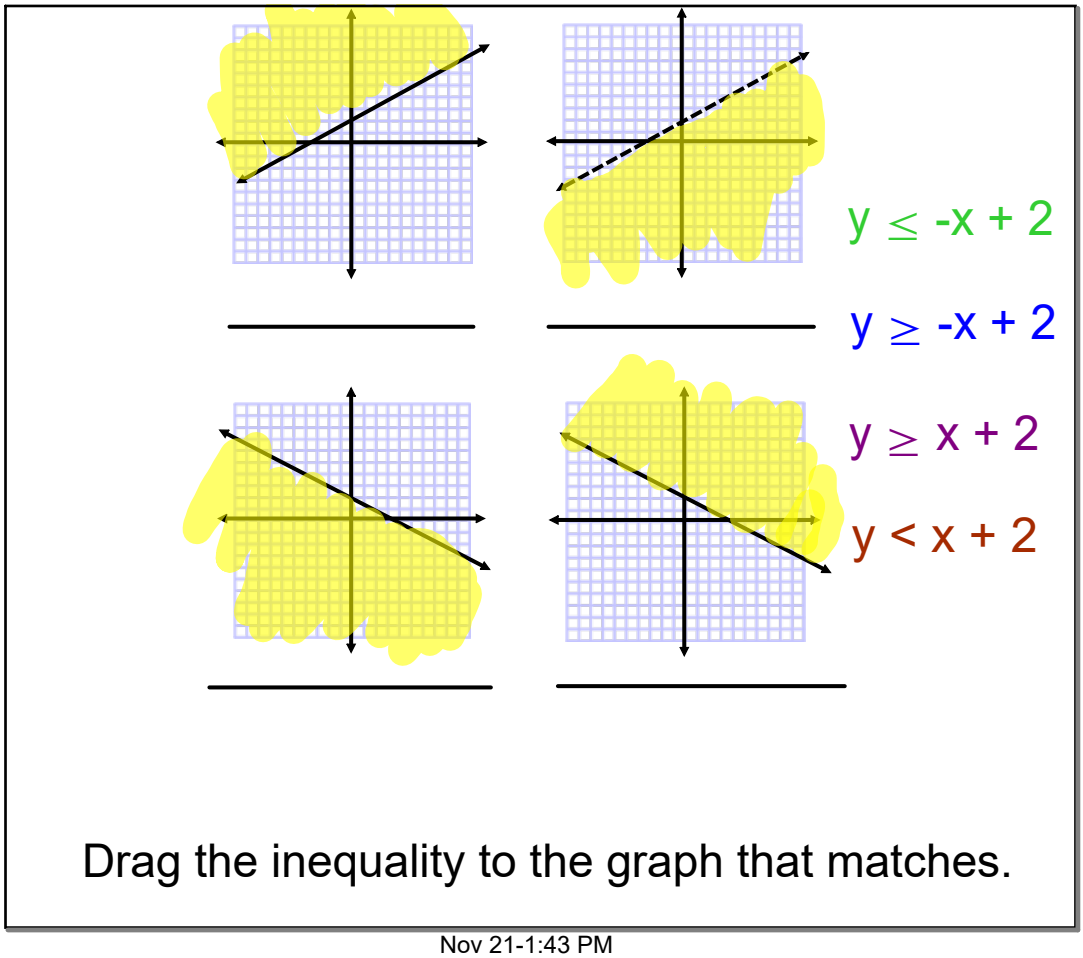

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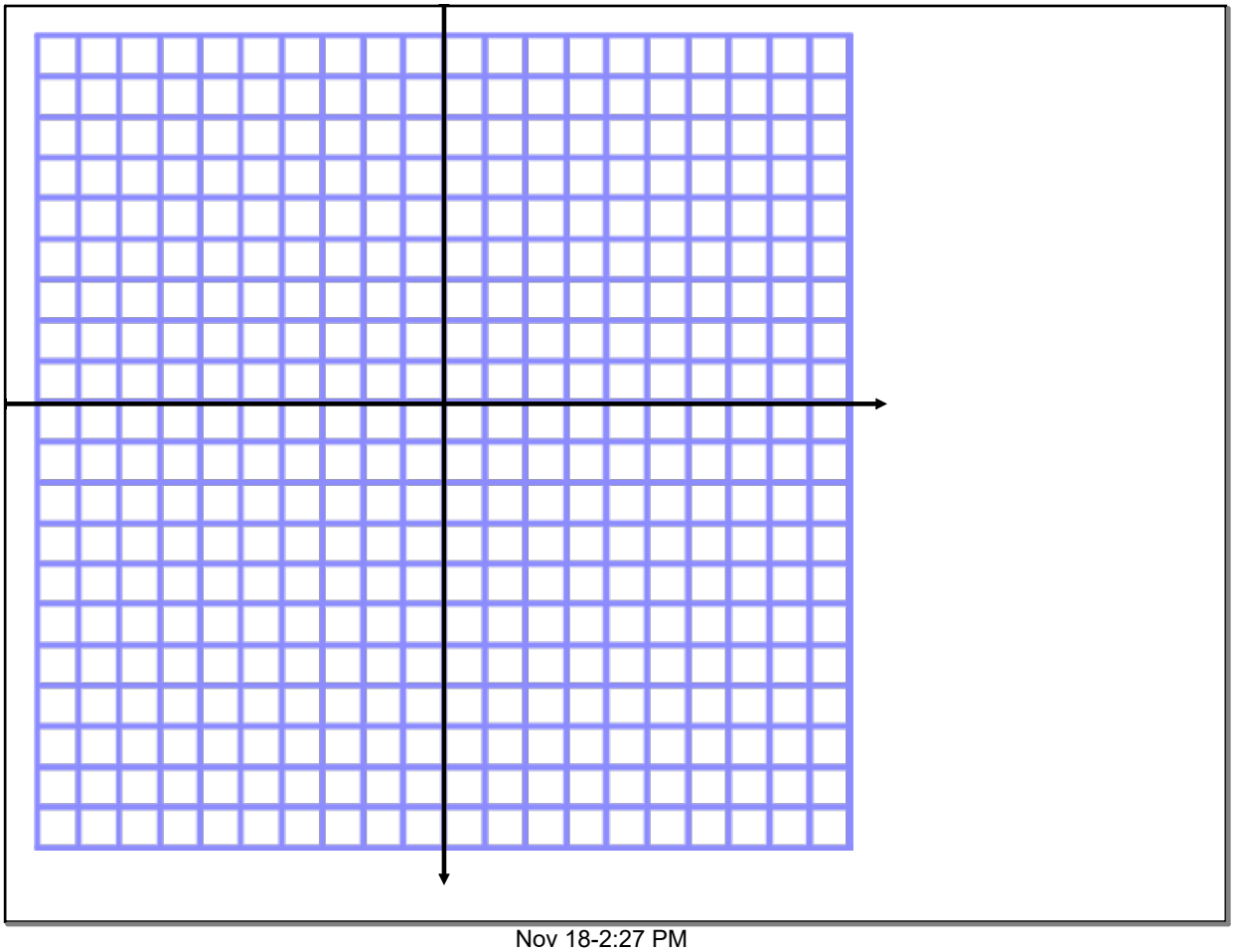
Let's try to get an idea of what Linear Inequalities in Two Variables are all about!!!

Interactive site to practice drawing linear inequalities

Oct 12-3:42 PM



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