Warm Up

Solve each equation or inequality.

Graph the solution on a number line.

1. $2c + 7 = 1$

2. $-12 \leq -6r$

3. $3m + 8 > 5$

1. $c = -3$

2. $r \leq 2$

3. $m > -1$

EQ: What does the solution region to a system of linear inequalities represent?

Unit 2	Systems of Linear Equations
Lesson 2	Systems of Linear Inequalities
Essential Question	What does the solution region to a system of linear inequalities represent?
Standards	M.ALGII.4.13
Objectives	
Vocabulary	

EQ: What does the solution region to a system of linear inequalities represent?

Journal Topic

Unit 3: Lesson 4

What is a linear inequality and how do you graph one?
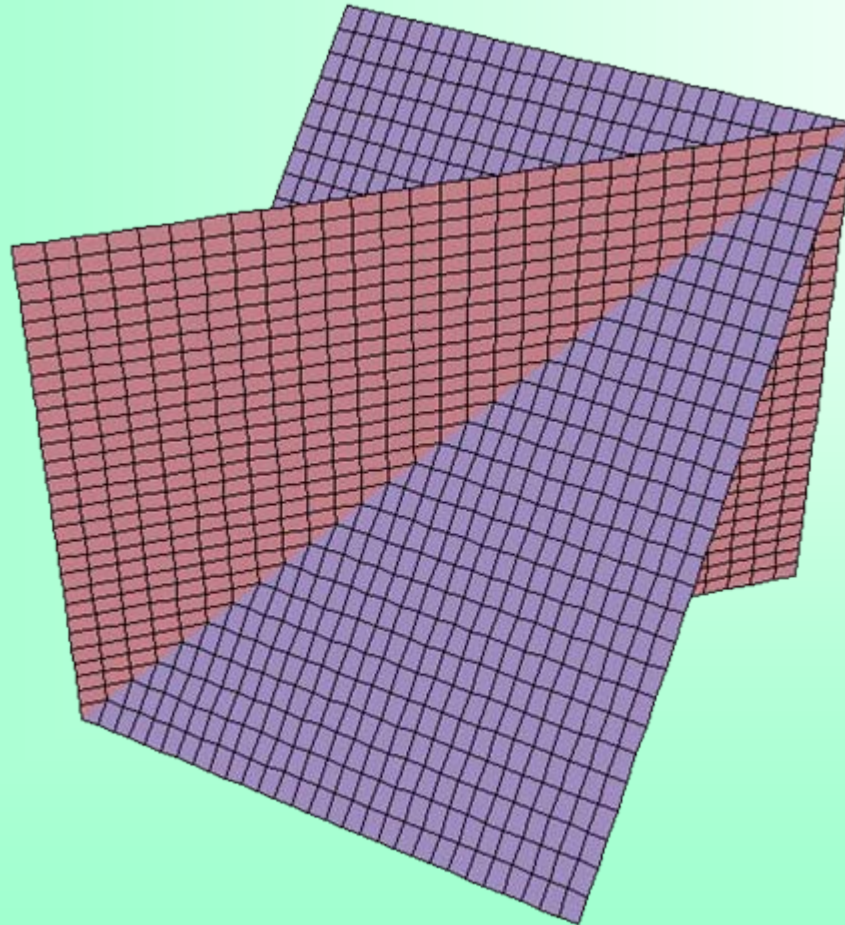
What we're learning today:

•How to find the solution to a system of linear inequalities

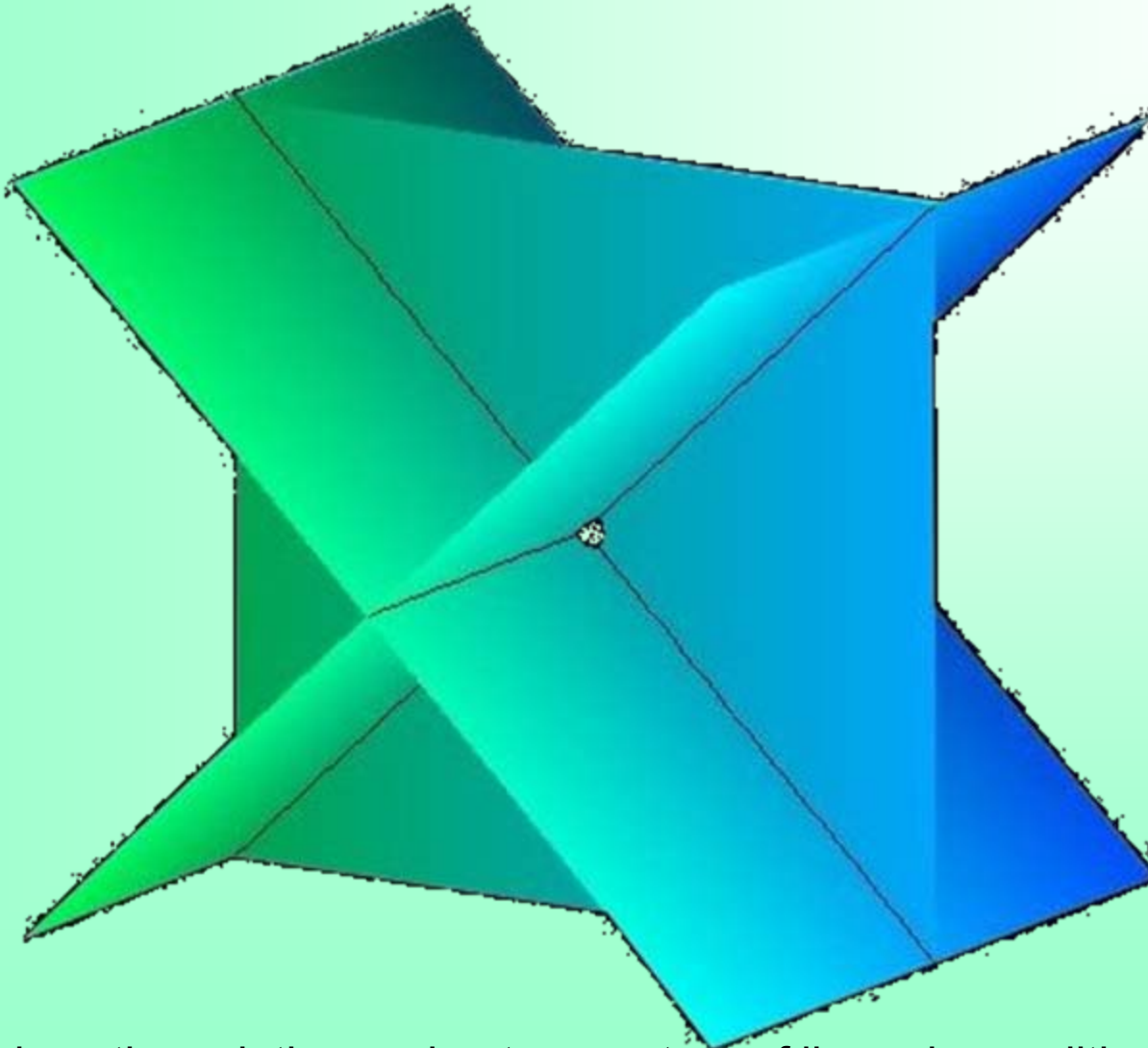EQ: What does the solution region to a system of linear inequalities represent?

Discussion

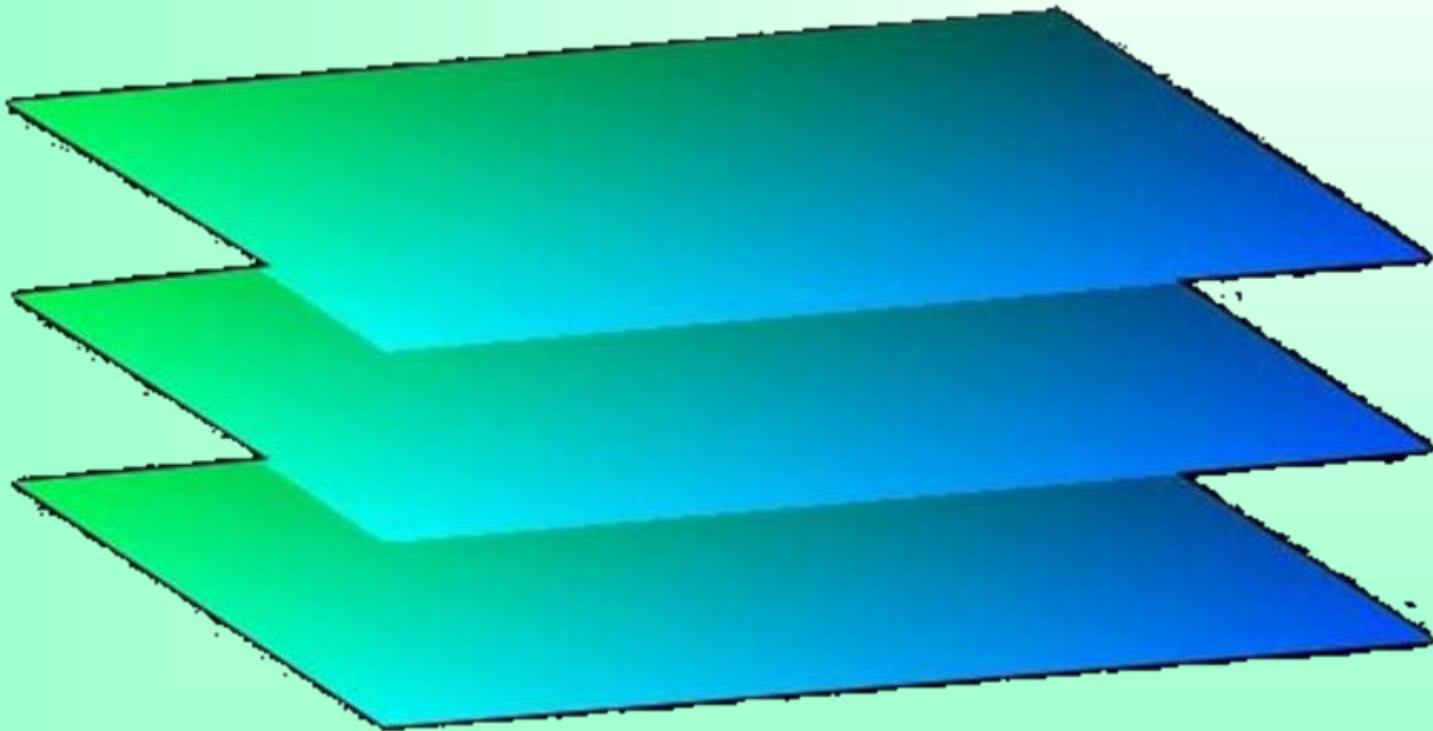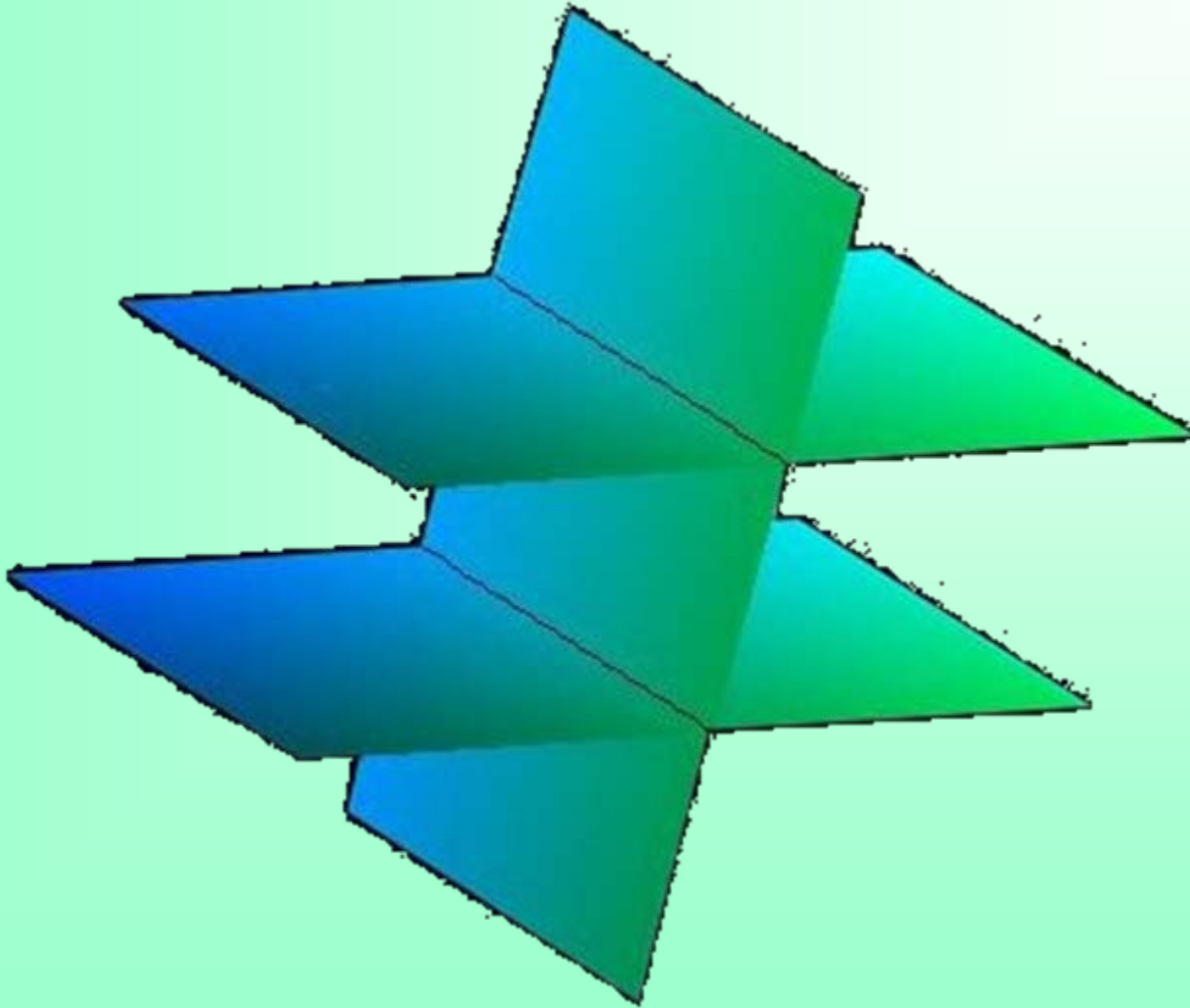EQ: What does the solution region to a system of linear inequalities represent?

Discussion

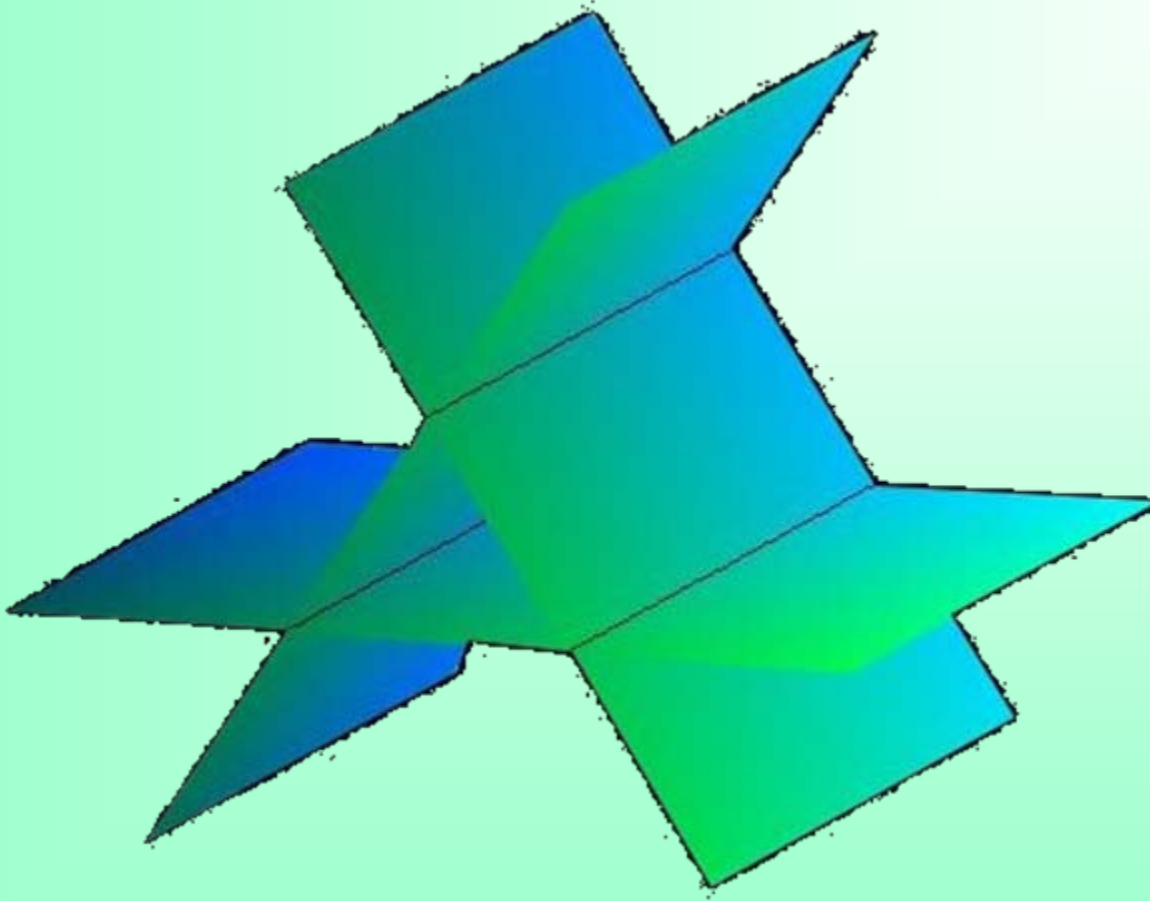EQ: What does the solution region to a system of linear inequalities represent?

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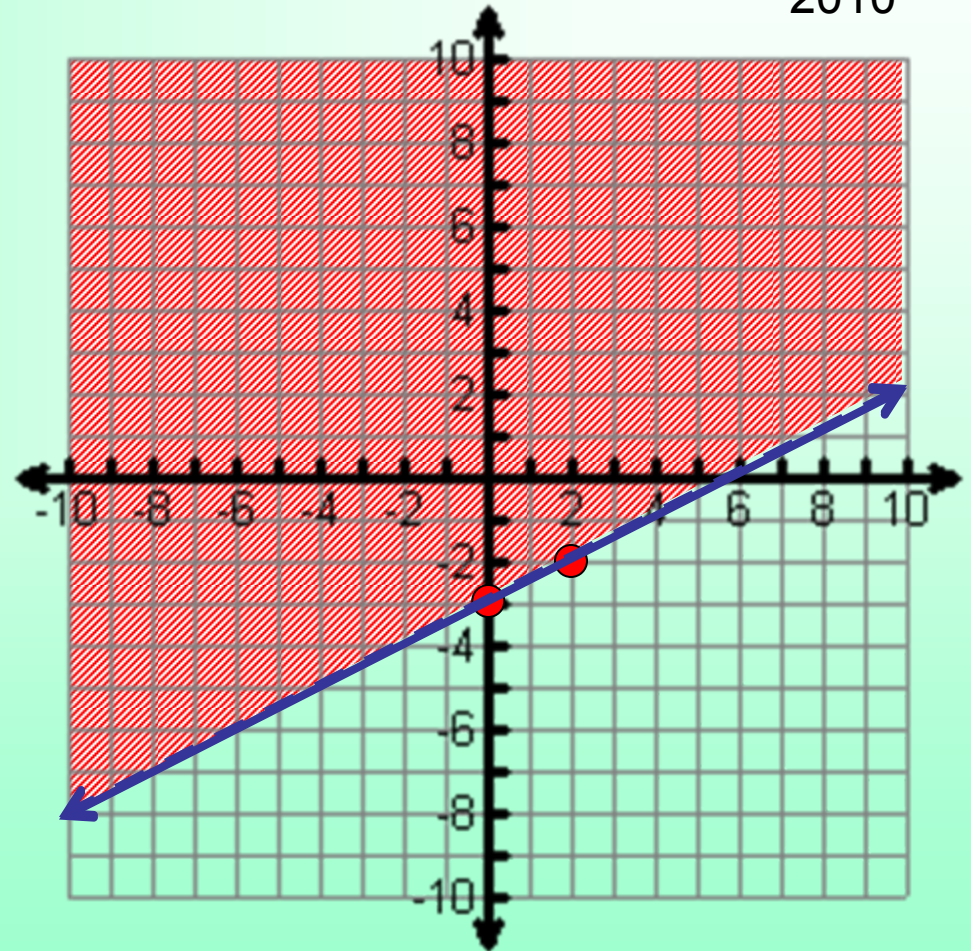EQ: What does the solution region to a system of linear inequalities represent?
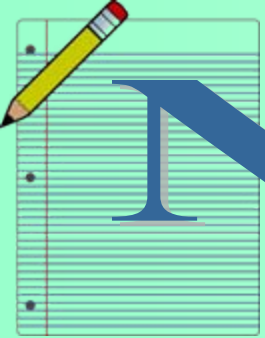
Discussion

$$y > \frac{1}{2}x - 3$$

Is (5, -8) a solution?

Is (1, 3) a solution?

Is (-4, -5) a solution?

EQ: What does the solution region to a system of linear inequalities represent?

Notes

Graphing a Linear Inequality

1) Solve the inequality for y.

2) Graph the line using the slope and y-intercept. Use a solid line for ≤ or ≥ and a dashed line for < or >.

3) Shade above the line for "y > …" or "y ≥ …" and shade below for "y < …" and "y ≤ …" Use a test point if necessary to check for proper shading.

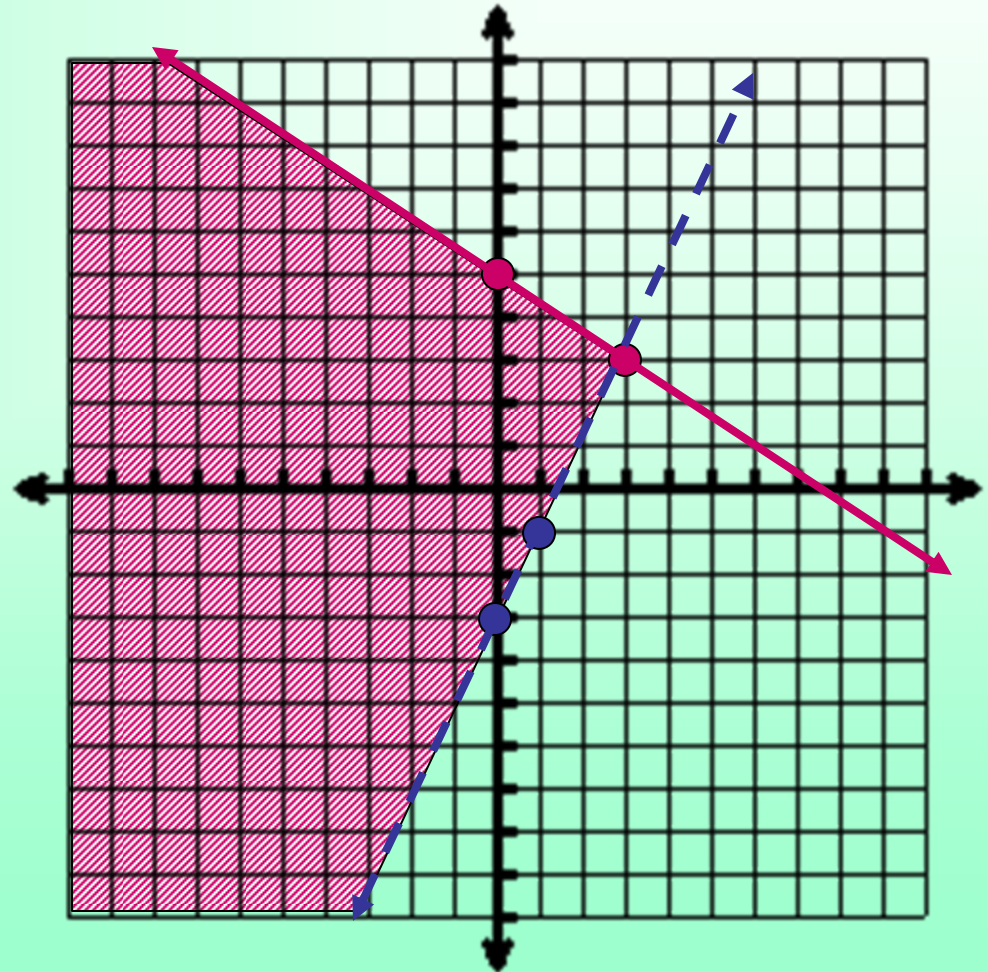EQ: What does the solution region to a system of linear inequalities represent?

Discussion

$$\begin{cases} y > 2x - 3 \\ y \leq {}^{-2}\!\big/\!_3\, x + 5 \end{cases}$$

Is (2, 7) a solution?

Is (5, 3) a solution?

EQ: What does the solution region to a system of linear inequalities represent?

Discussion

$$\begin{cases} y > 2x - 6 \\ x \geq -2 \\ y \leq -\frac{1}{2}x + 4 \end{cases}$$

Is (2, 1) a solution?

Is (2, -7) a solution?

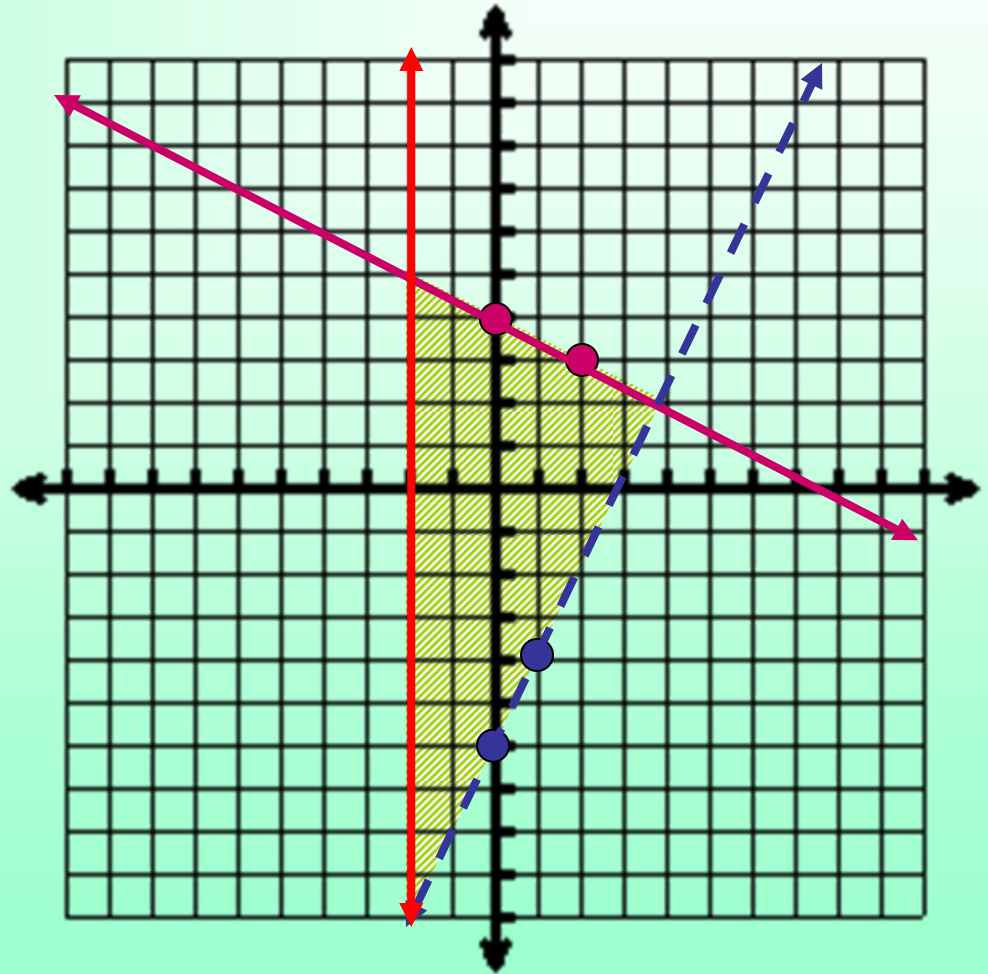EQ: What does the solution region to a system of linear inequalities represent?

Ex: Graph the system.

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x-2y $\leq$ 3

y $\geq$ 3x- 4

1st inequality

x-int (3,0)

y-int (0, -3/2)

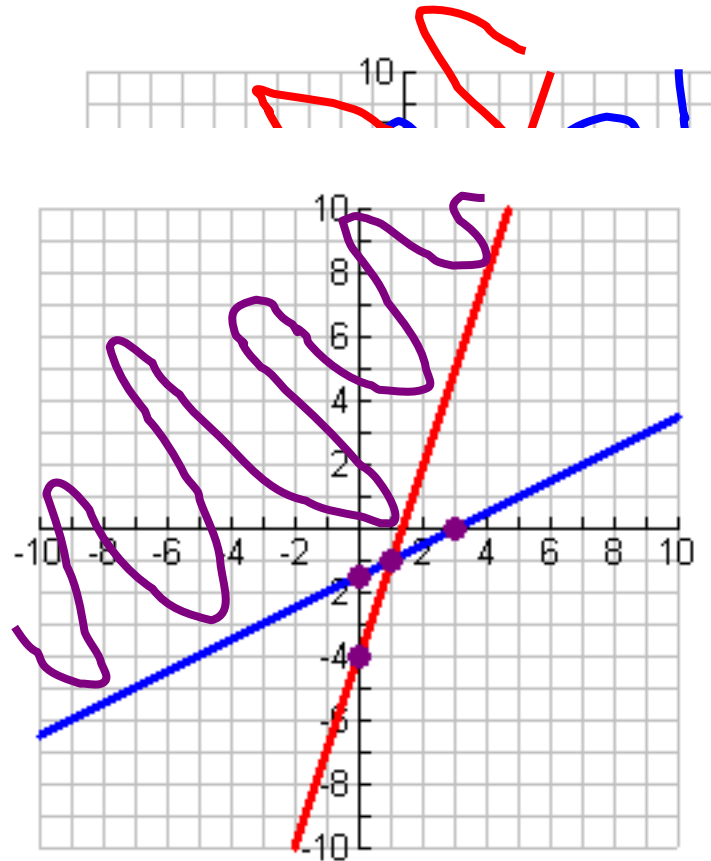Test point?

2nd inequality

y-int (0,-4)

Slope: 3

Test point?

E   ystem of linear inequalities represent?

Ex: Graph the system.

$x \leq 0$

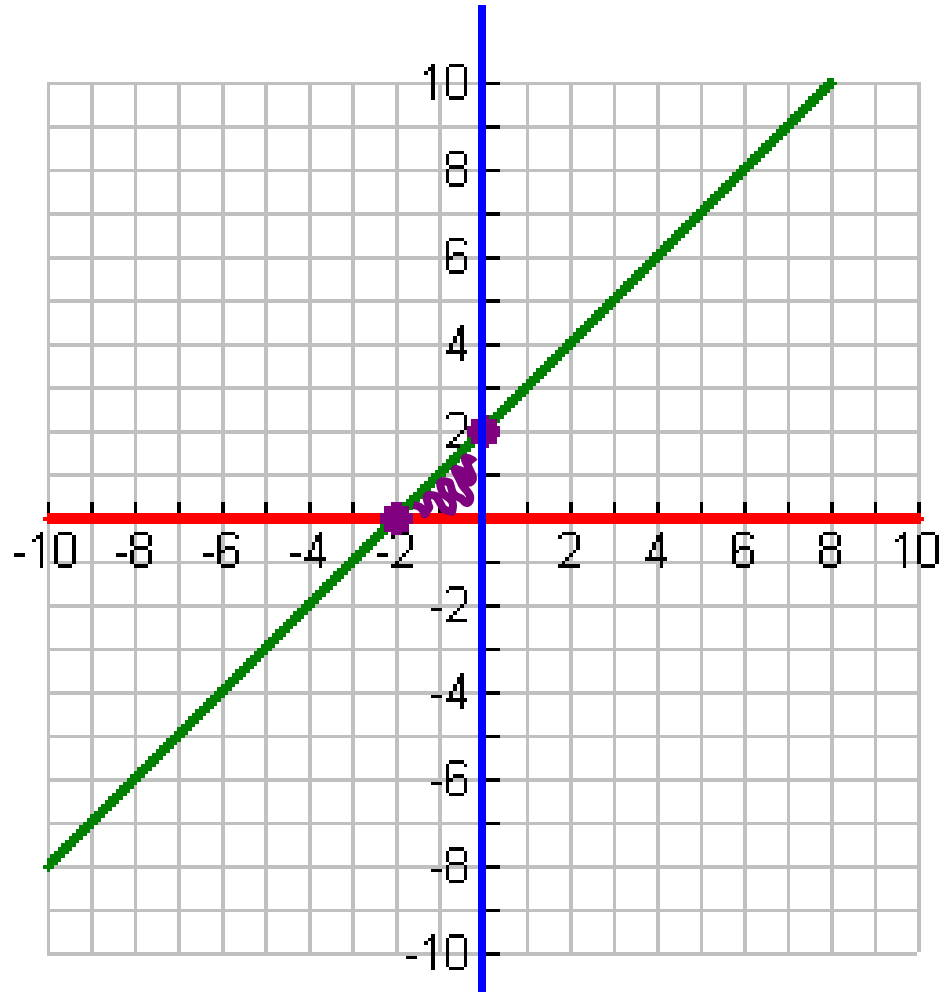$y \geq 0$

$x - y \geq -2$

1st inequal.

Vertical line

2nd inequal.

Horizontal line

3rd inequal.

x-int (-2,0)

y-int (0,2)

Class Work

- •Worksheet:

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EQ: What does the solution region to a system of linear inequalities represent?