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Algebra Lecture 12

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December 19, 2016

Topics

Topics Covered Thus Far

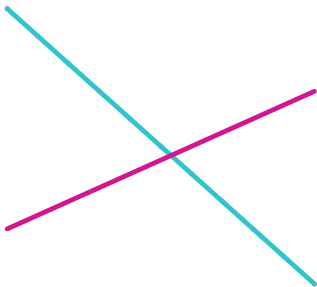
- Solving Linear Equations and Word Problems
- Solving Linear Inequalities and Word Problems
- Inequalities on the Real Number Line \mathbb{R}^1
- Systems of Linear Equations
- Systems of Linear Inequalities

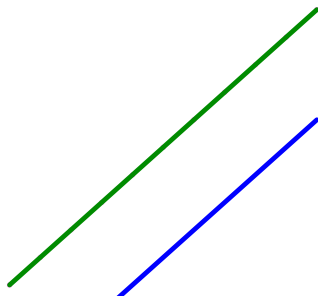
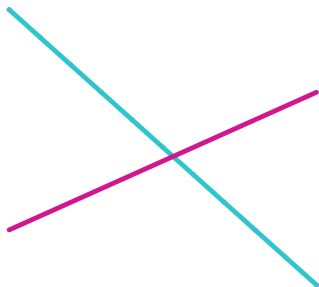
Recall what is a
System of Linear Inequalities.

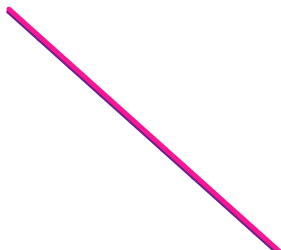
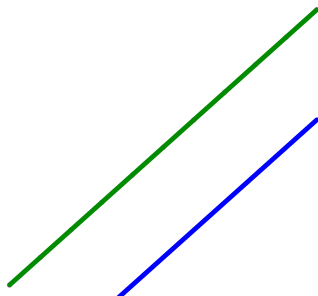
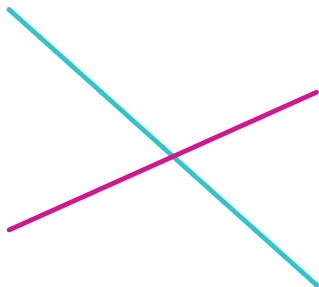
It is a set of Linear Inequalities.

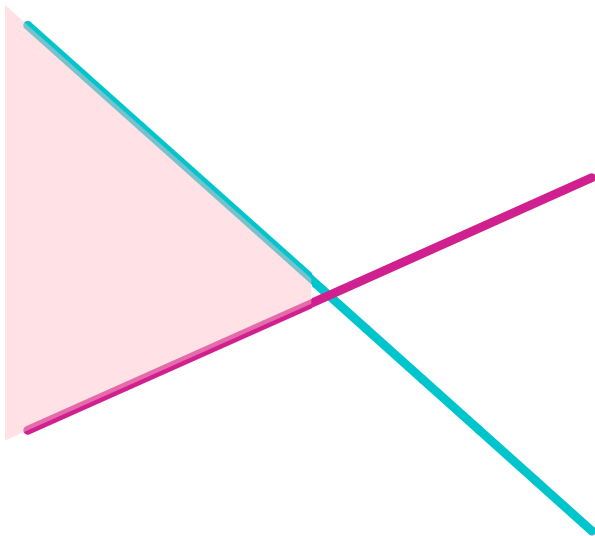
Recall that a **solution** to a System of Linear inequalities is a **set of points** that satisfy all linear inequalities in the System.

Recall the different possible ways in which two lines can be drawn in the plane \mathbb{R}^2 .



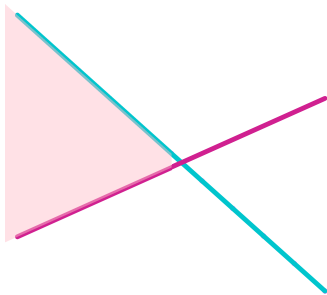






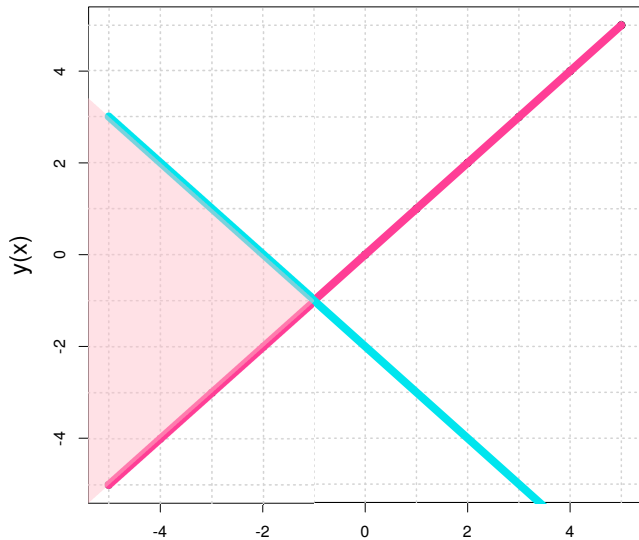
Come up with a **System of Linear Inequalities** that represents this case, and graph the solutions for this system.

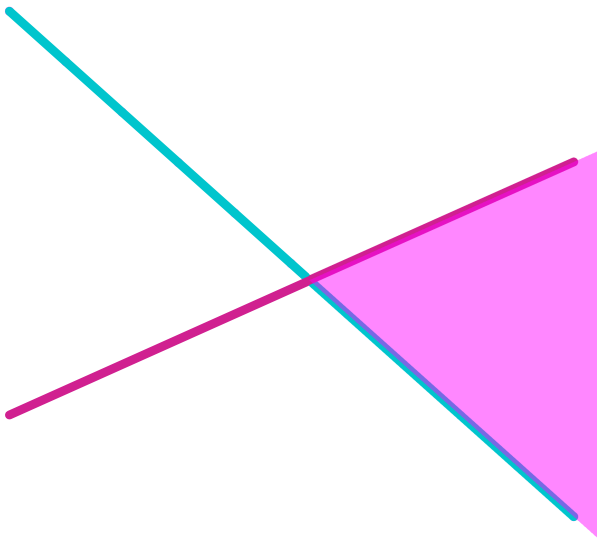
$$\heartsuit = \left\{ \begin{array}{l} ? \\ ? \end{array} \right.$$



Example Solution

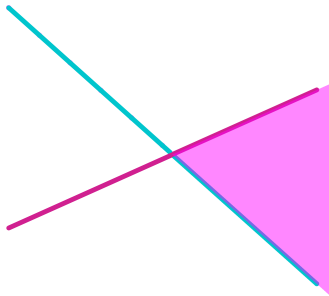
$$y \geq x \quad y \leq -x - 2$$





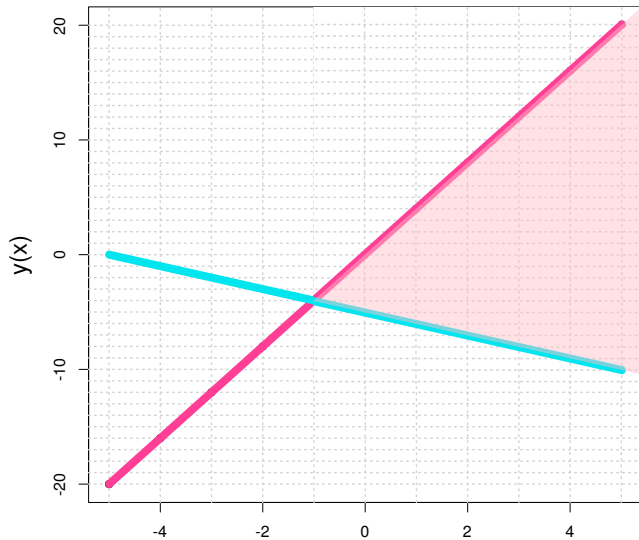
Come up with a **System of Linear Inequalities** that represents this case, and graph the solutions for this system.

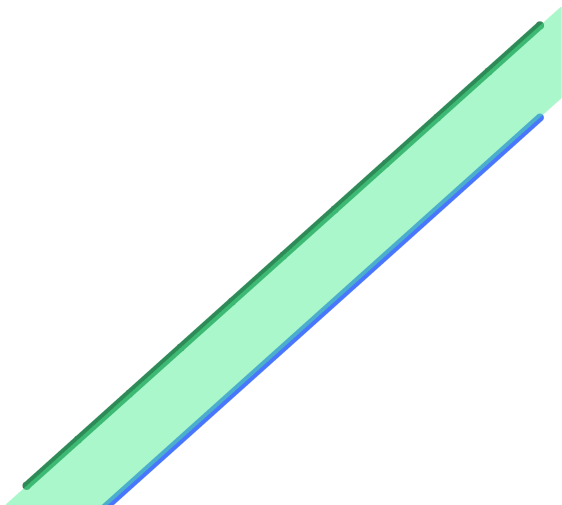
$$\diamond = \left\{ \begin{array}{l} ? \\ ? \end{array} \right.$$



Example Solution

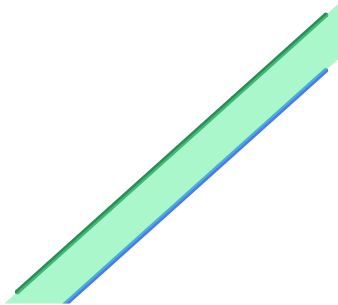
$$y \leq 4x \quad y \geq -x - 5$$





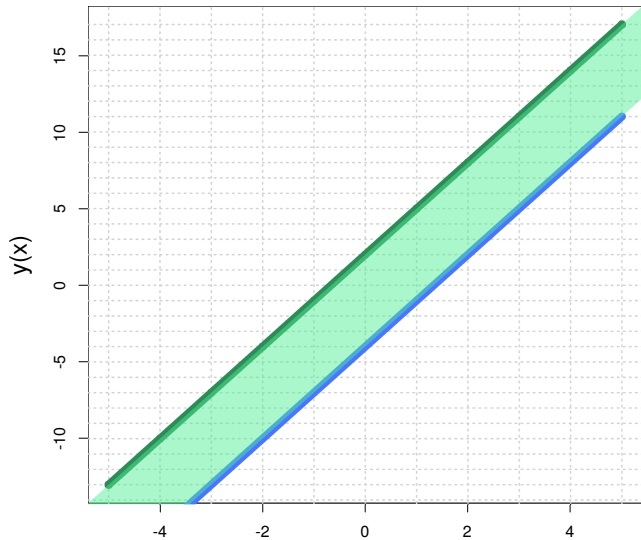
Come up with a **System of Linear Inequalities** that represents this case, and graph the solutions for this system.

$$\spadesuit = \left\{ \begin{array}{l} ? \\ ? \end{array} \right.$$



Example Solution

$$y \leq 3x + 2 \quad y \geq 3x - 4$$

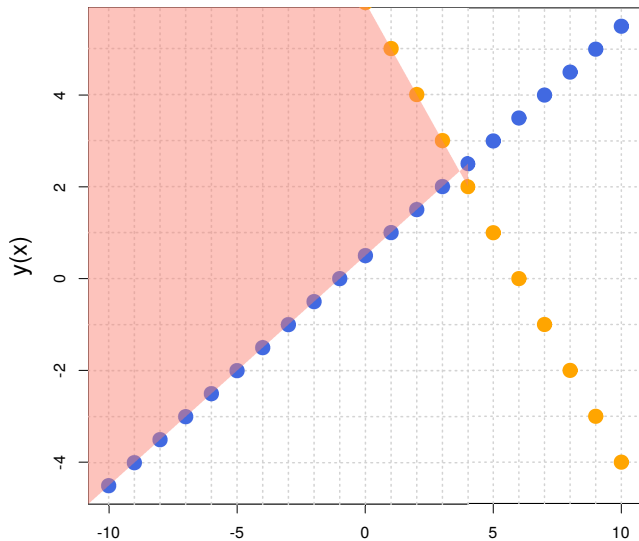


Graph the solutions for the system

$$\clubsuit = \begin{cases} 2y > x + 1 \\ y < -x + 6 \end{cases}$$

Solution

$$y > \frac{1}{2}x + \frac{1}{2} \quad y < -x + 6$$

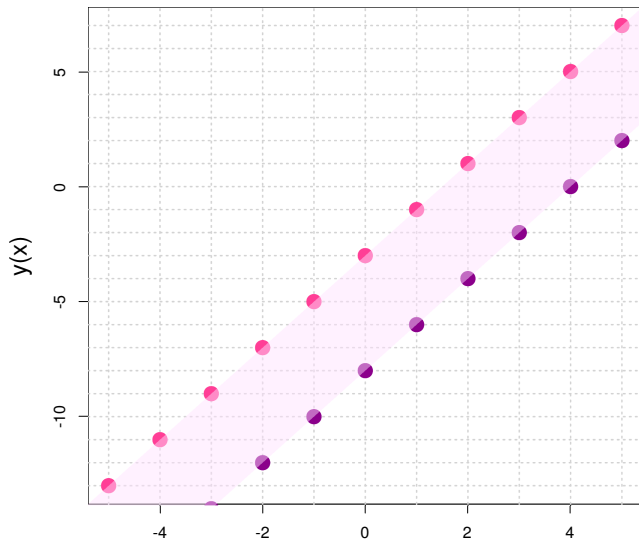


Graph the solutions for the system

$$\heartsuit = \begin{cases} 6x - 3y > 9 \\ 4x - 2y < 16 \end{cases}$$

Solution

$$6x - 3y > 9 \quad 4x - 2y < 16$$



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