

Graphing Linear Inequalities and Systems of Inequalities Video Lecture

Section 9.4

Course Learning Objectives:

Solve certain types of linear inequalities.

Weekly Learning Objectives:

- 1) Graph a linear inequality in two variables.**
- 2) Solve a system of linear inequalities.**

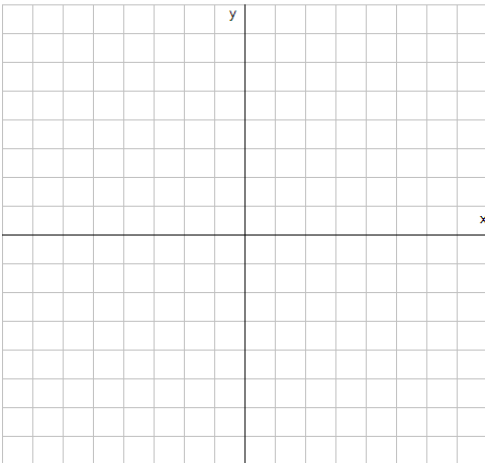
Graphing Linear Inequalities and Systems of Inequalities

How to Graph a Linear Inequality in Two Variables:

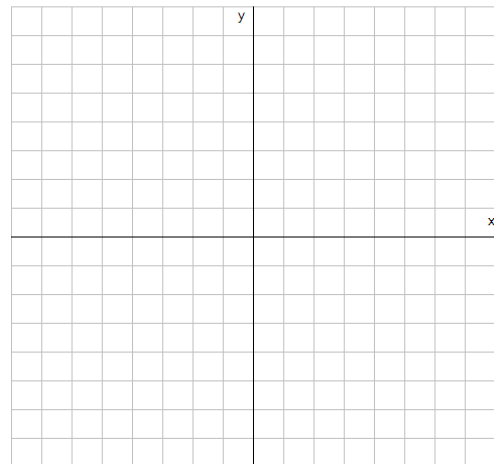
- Draw a boundary line: Replace the inequality symbol with an equal sign and graph the line. Use a solid line if the inequality is \leq or \geq . Use a dashed line if the inequality is $<$ or $>$.
- Choose a test point not on the line and substitute into the original inequality.
- If the test point gives a true inequality, shade the region containing the test point. If the test point gives a false inequality, shade the other side of the line.

Examples:

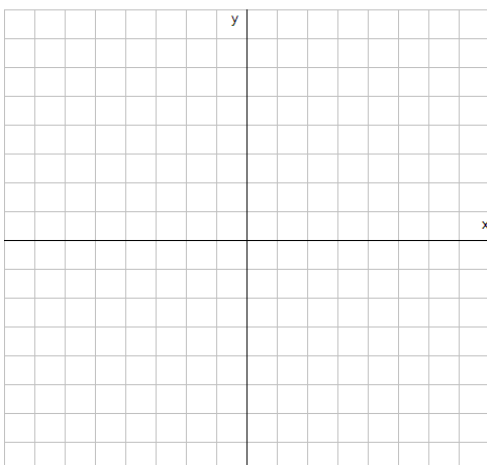
Graph $x + y < -3$



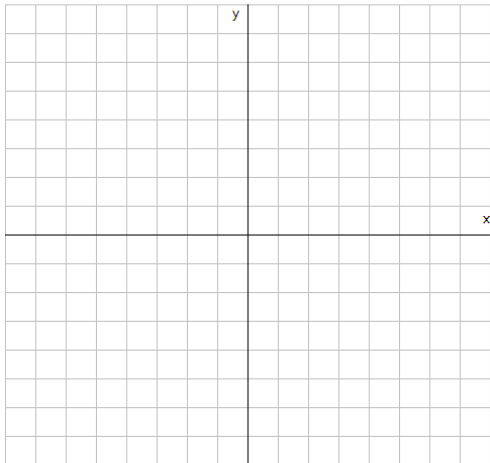
Graph $x + 2y \geq 0$



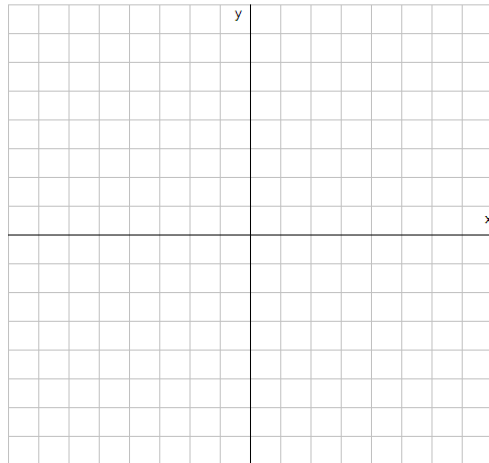
Graph $3y > 3$



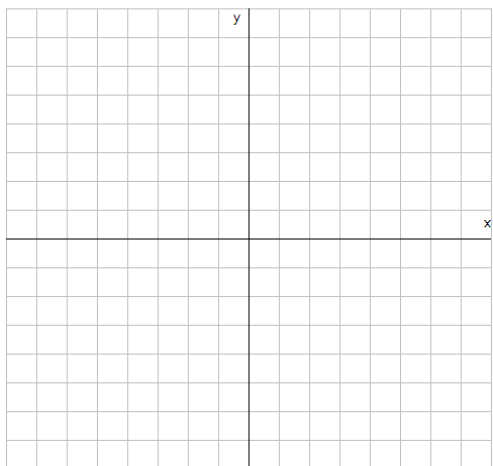
Graph $x - y > 2$ AND $x \geq 3$



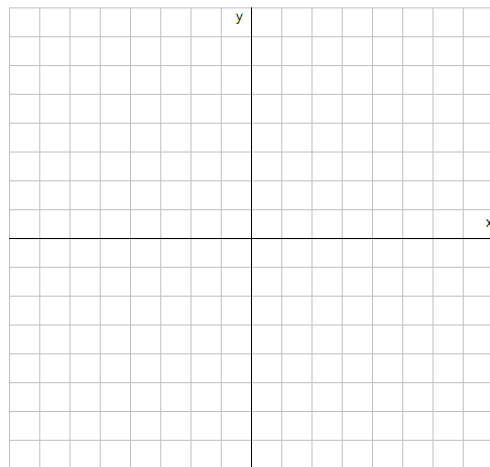
Graph $x + y \geq 1$ OR $x + y \leq 4$



Graph $|y| < 5$

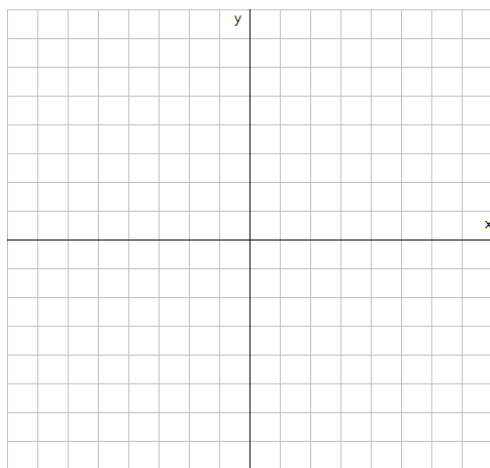


Graph the system:
$$\begin{cases} 2x \leq y \\ x + 4y \geq 4 \end{cases}$$



Graph:

$$\begin{cases} 2x - 3y \leq 6 \\ y \geq 0 \\ y \leq 4 \\ x \geq 0 \end{cases}$$



Graph:

$$\begin{cases} x \geq 0 \\ y \geq 0 \\ 2x + y \leq 4 \\ 2x - 3y \leq 6 \end{cases}$$

