

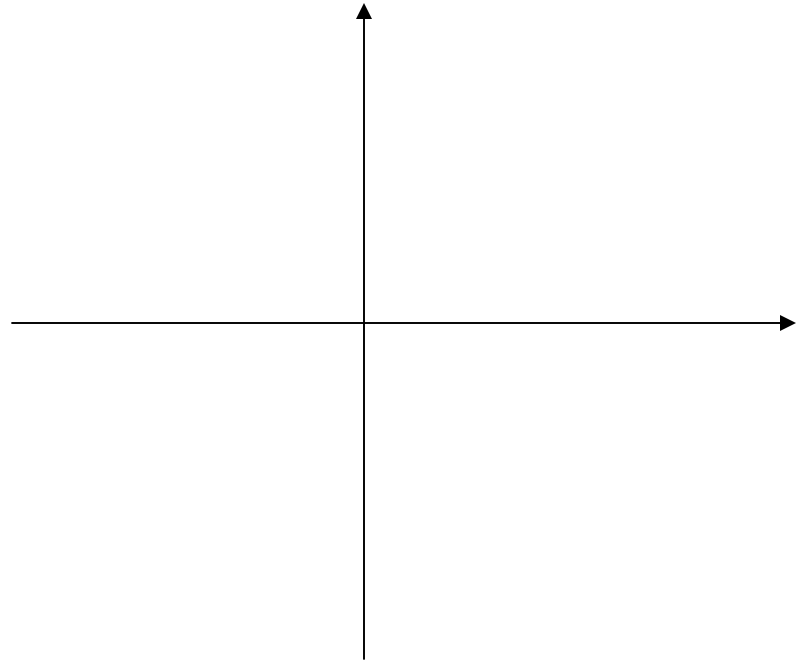
Math 1313
Chapter 3 – Section 3.1
Part II – Graphing Systems of Linear
Inequalities

The **solution set of a system of linear inequalities in two variables** is the set of all points that simultaneously satisfy all the inequalities in the system.

Example 1: Determine the solution set for the following system.

$$x + y \leq 3$$

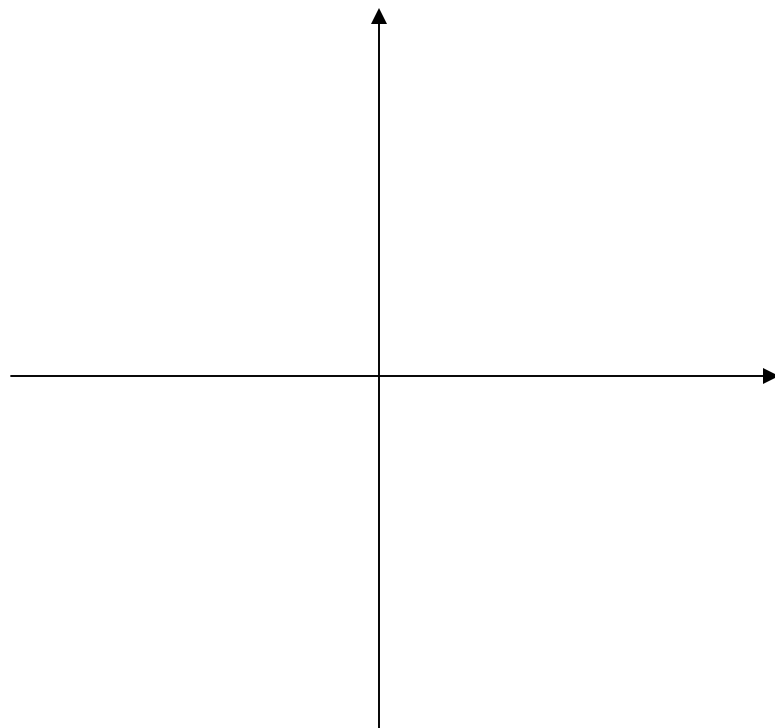
$$3x - y \leq 0$$



Example 2: Determine the solution set for the following system.

$$25x - 10y > 50$$

$$x \leq 4$$



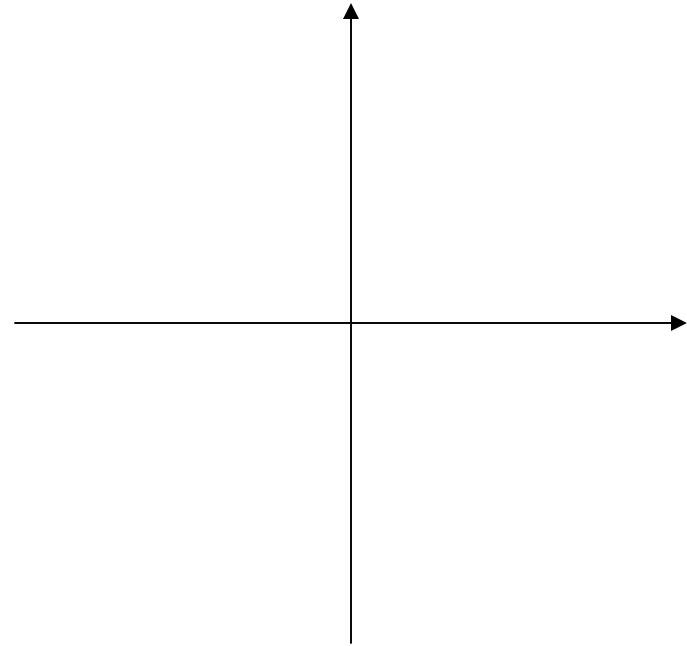
Example 3: Determine the solution set for the following system.

$$x + 2y \leq 10$$

$$2x + y \geq 8$$

$$x \geq 0$$

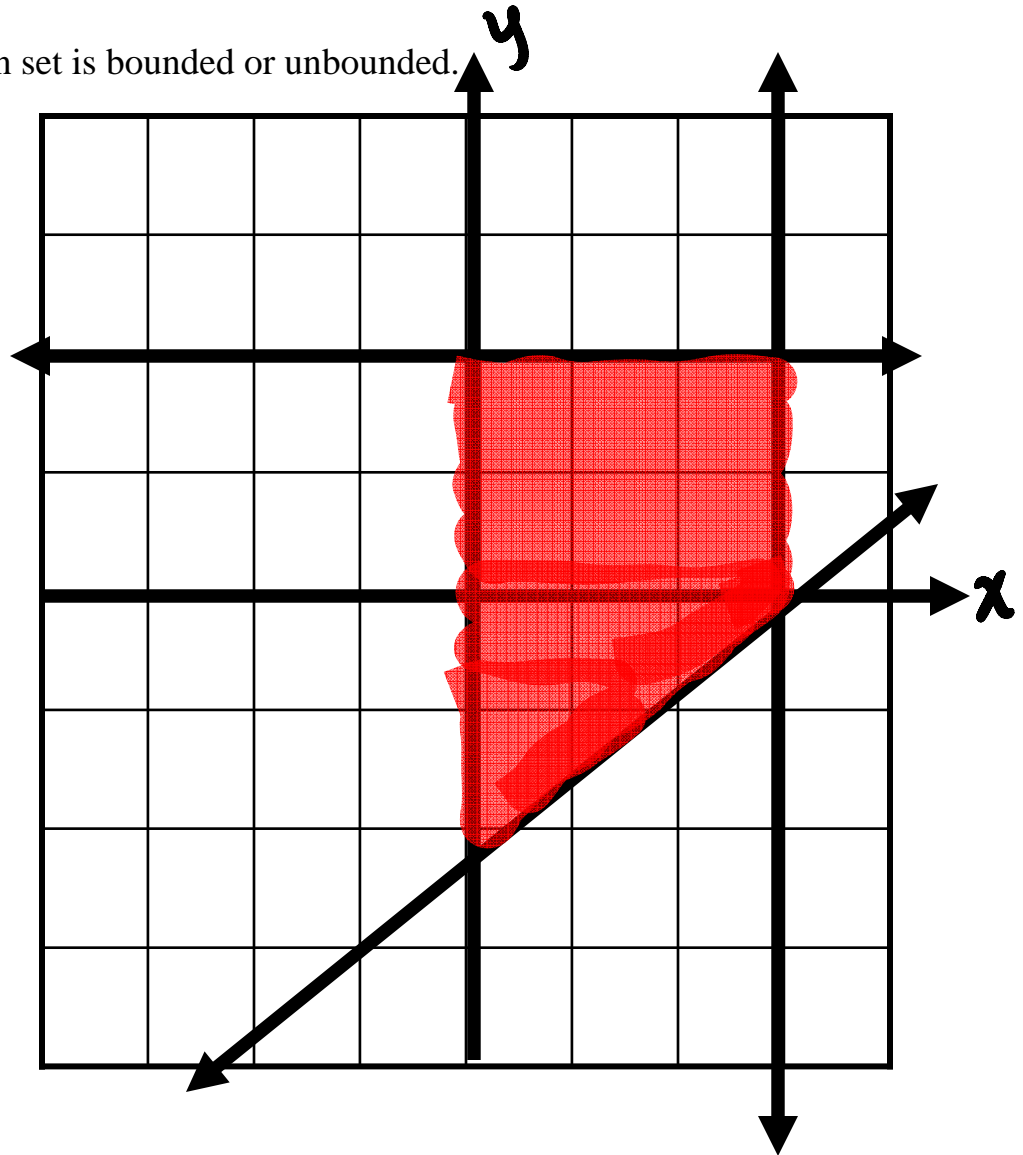
$$y \geq 0$$



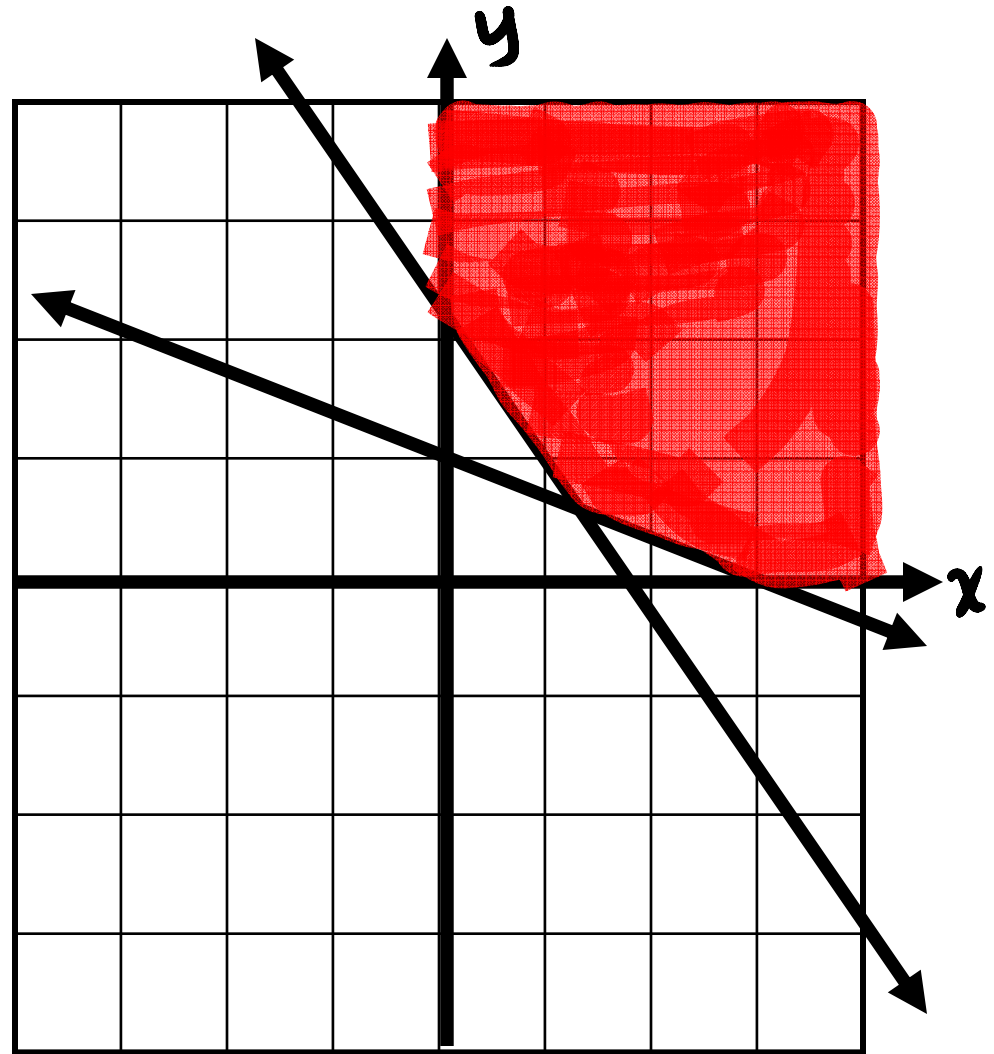
Bounded and Unbounded Solution Sets

A solution set of a system of linear inequalities is **bounded** if it can be enclosed in a circle of finite radius. Otherwise, it is **unbounded**.

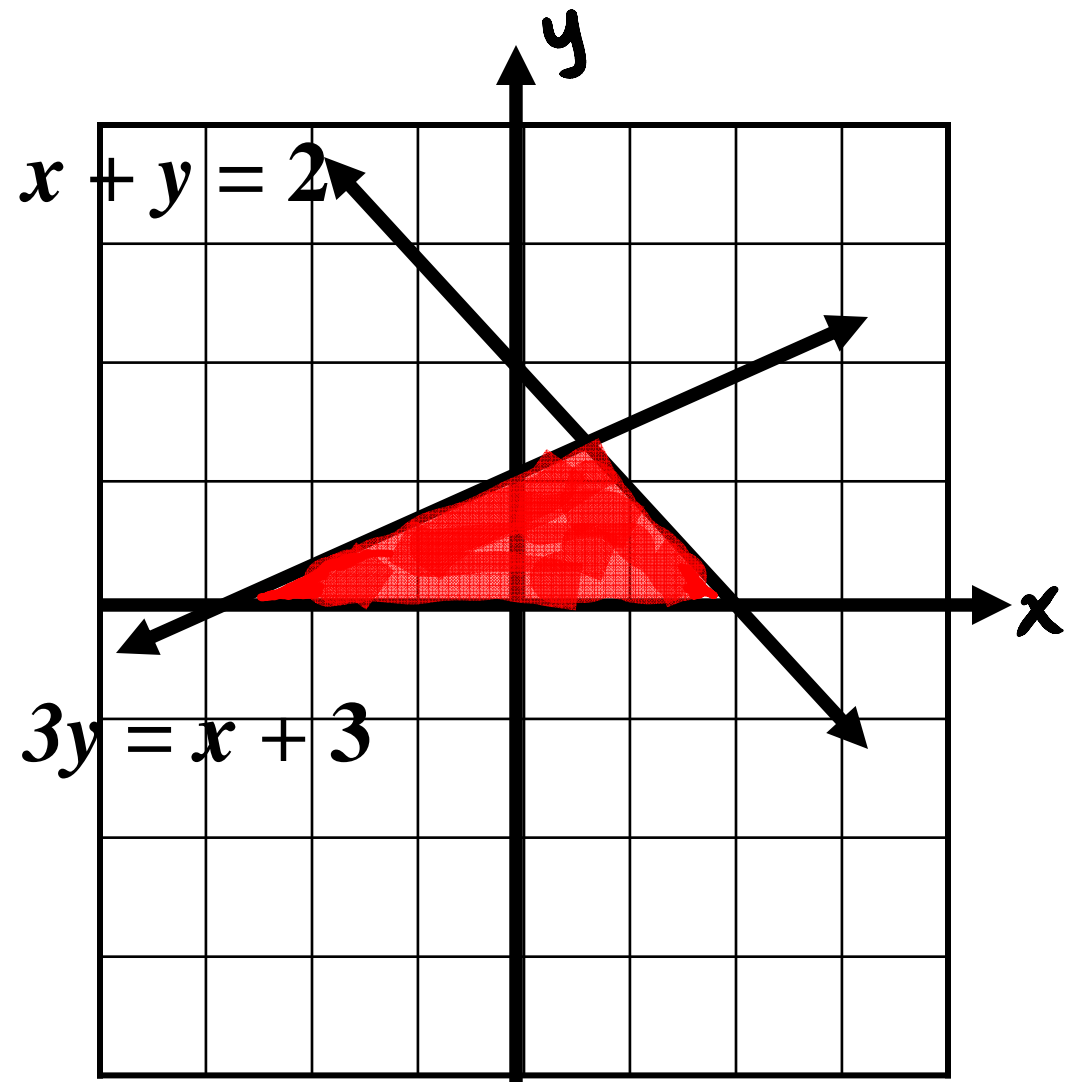
Example 4: Determine if the following solution set is bounded or unbounded.



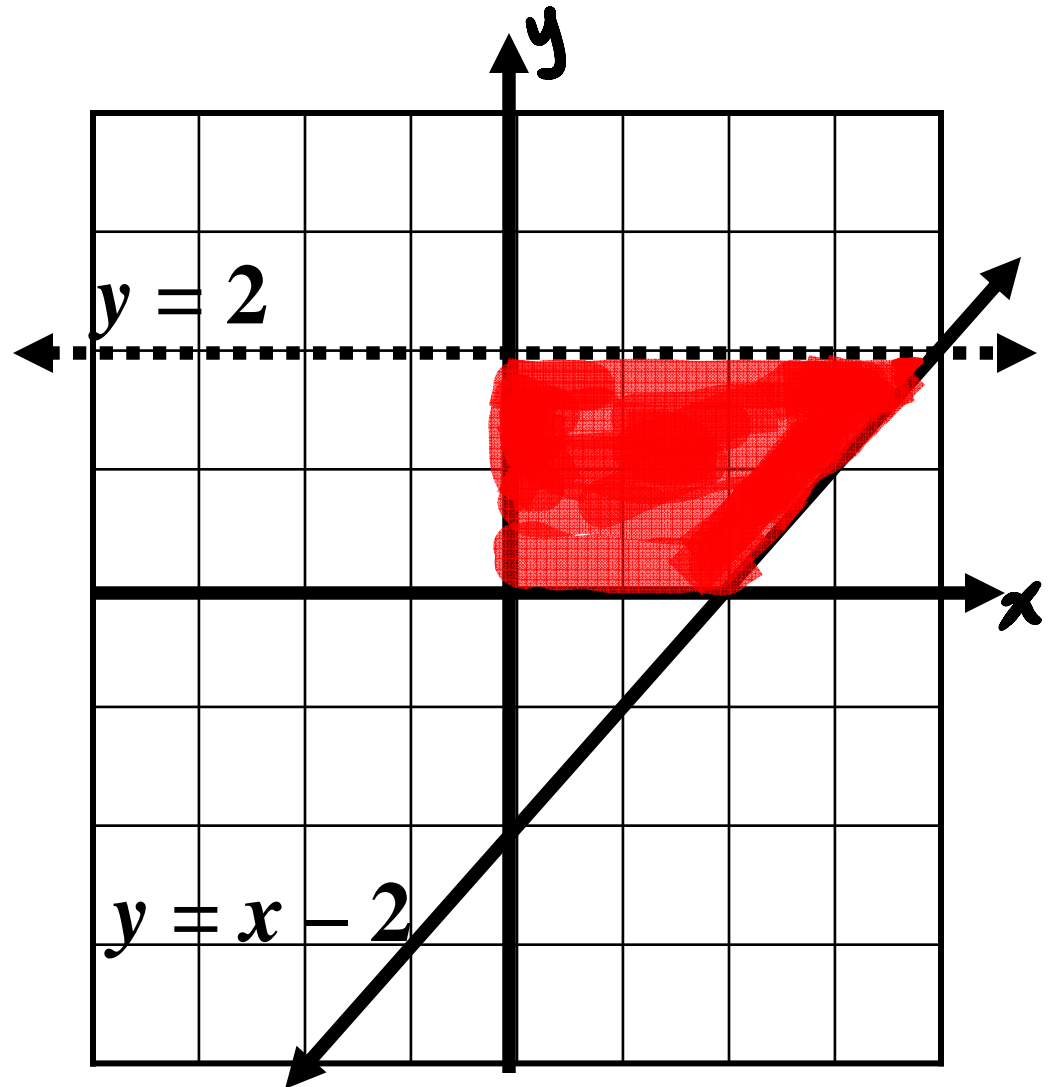
Example 5: Determine if the following solution set is bounded or unbounded.



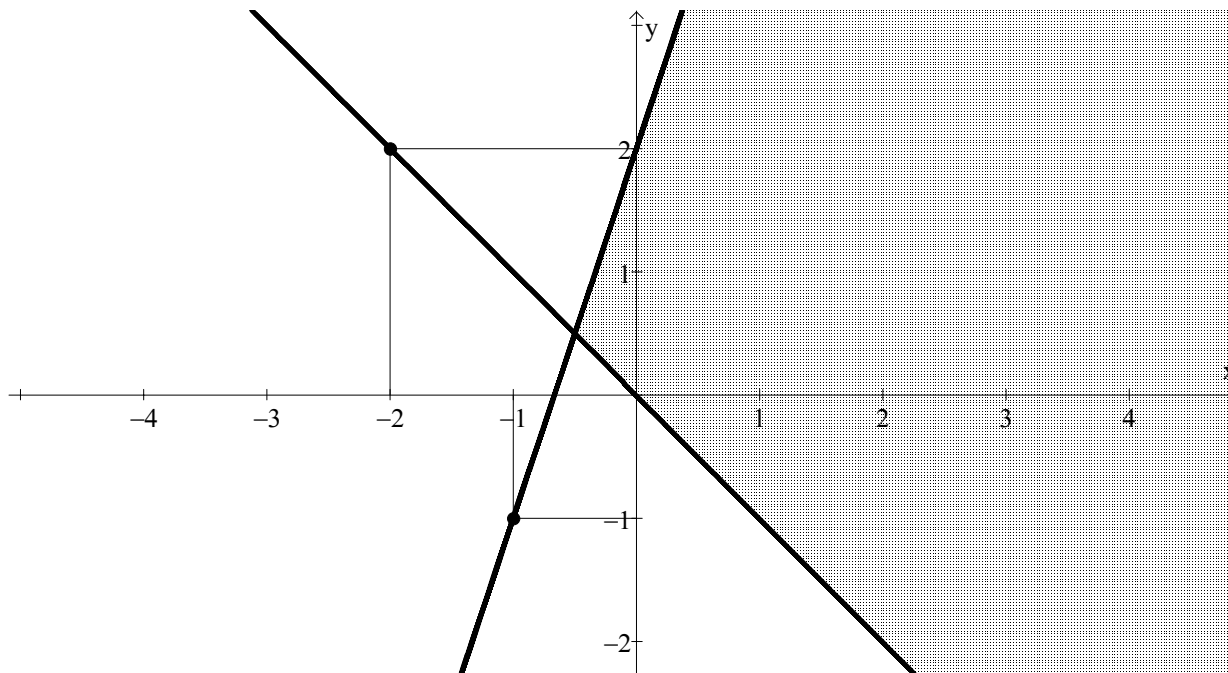
Example 6: Write a system of linear inequalities that describes the shaded region.



Example 7: Write a system of linear inequalities that describes the shaded region.



Example 8: Write a system of linear inequalities that describes the shaded region.



Example 9: Write a system of linear inequalities that describes the shaded region.

