

Algebra II
Auch

Section 3.3
Date:

Objectives

- Solve systems of linear inequalities

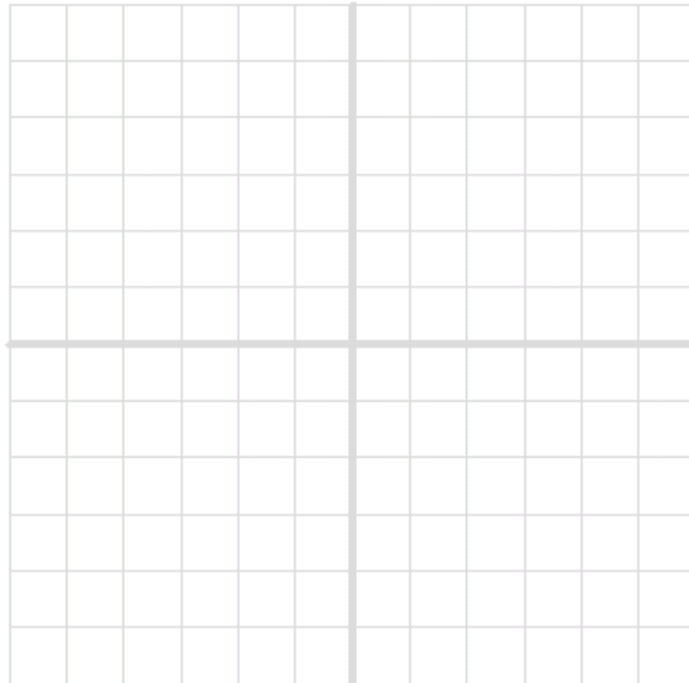
Vocabulary

systems of linear inequalities-

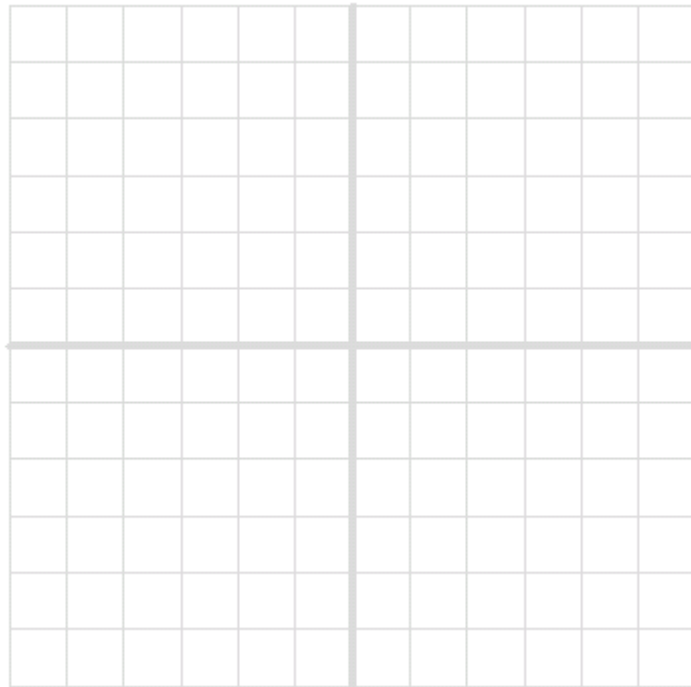
Example 1

Graph each system of inequalities.

a)
$$\begin{cases} y \leq -2x + 4 \\ y > x - 3 \end{cases}$$

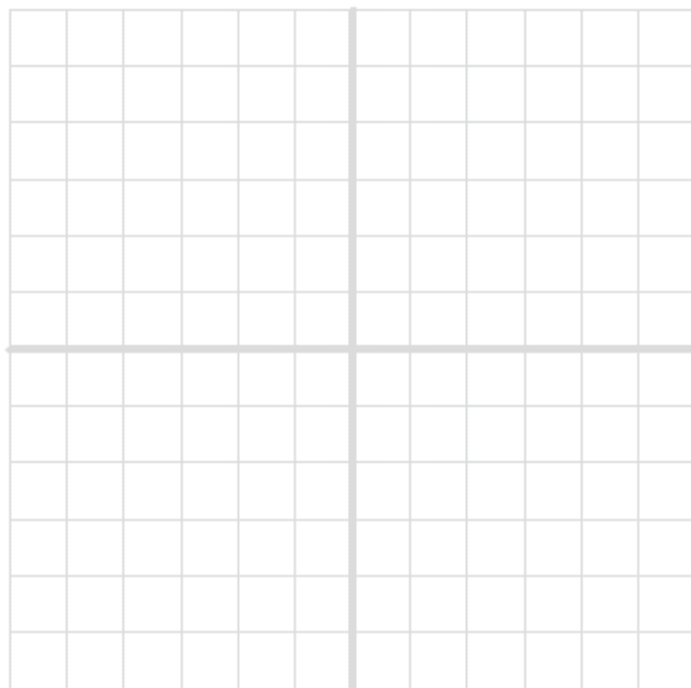


b)
$$\begin{cases} y \geq \frac{3}{2}x + 2 \\ x < 3 \end{cases}$$

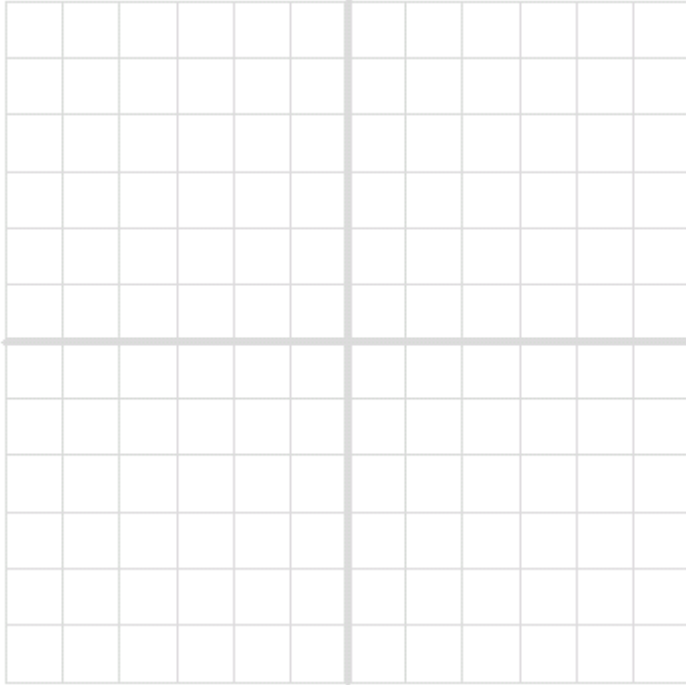


Try It! Graph each system of inequalities.

c)
$$\begin{cases} y \leq -2x + 4 \\ y > x - 3 \end{cases}$$



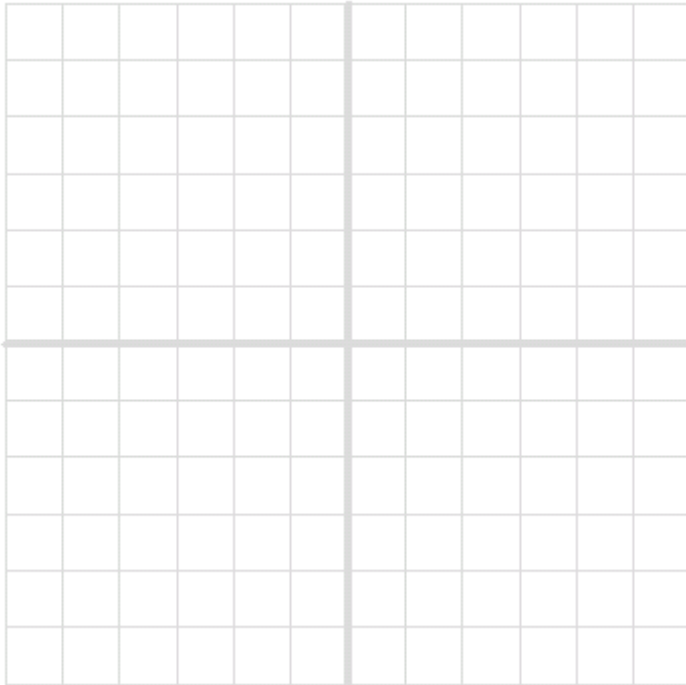
d)
$$\begin{cases} y \geq \frac{3}{2}x + 2 \\ x < 3 \end{cases}$$



Example 2

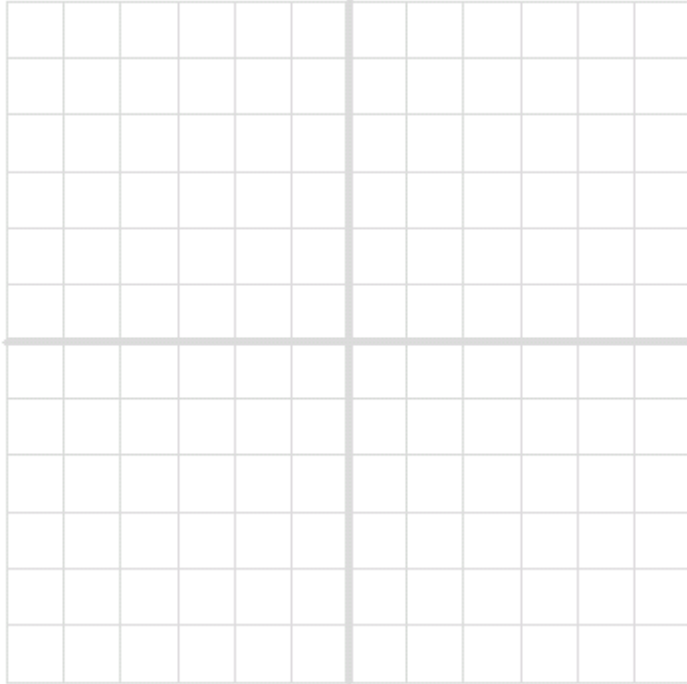
Expedition Application

A polar expedition is 240 miles from base camp, and a snow storm is predicted to reach the area in 48 hours. The expedition will travel as far as possible by boat and walk the remaining distance to camp before the storm hits. The explorers can navigate the boat through the ice at a rate of 12 miles per hour or walk with the equipment at the rate of 3 miles per hour. Write and graph a system of inequalities that can be used to determine how long the explorers may travel by foot or by boat to reach base camp before the storm.



Try it!

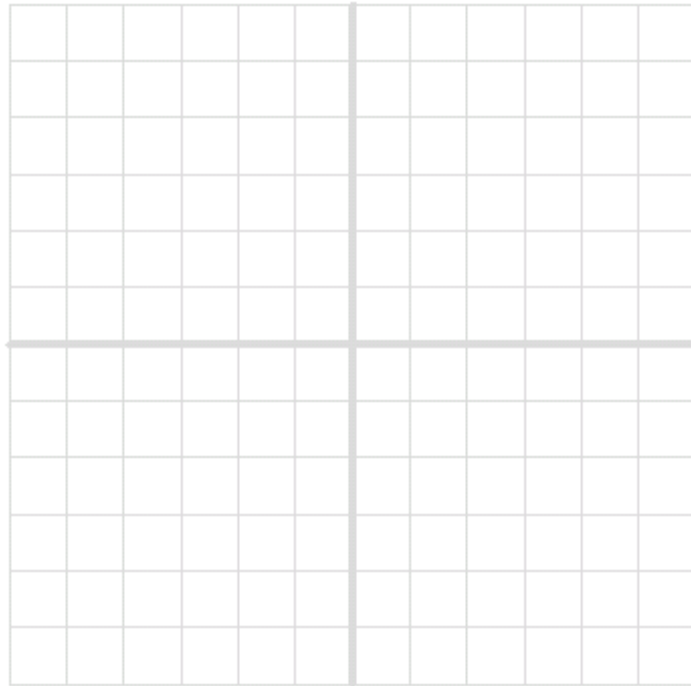
Leyla is selling hot dogs and spicy sausages at the fair. She has only 40 buns, so she can sell no more than a total of 40 hotdogs and spicy sausages. Each hotdog sells for \$2, and each sausage sells for \$2.50. Leyla needs at least \$90 on sales to meet her goal. Write and graph a system of inequalities that models this situation.



Example 3

Graph each system of inequalities, and classify the figure created by the solution region.

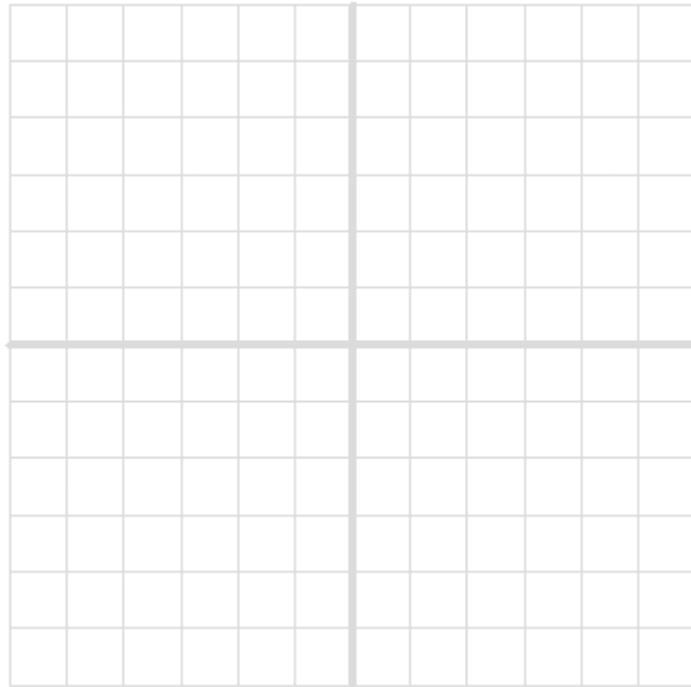
a)
$$\begin{cases} y \leq 5 \\ y \geq 5 \\ y \leq 3x + 1 \\ y \geq 3x - 4 \end{cases}$$



Try It!

Graph each system of inequalities, and classify the figure created by the solution region.

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



Try It! Graph each system of inequalities.

c)
$$\begin{cases} y \leq 4 \\ y \geq -1 \\ y \leq -x + 8 \\ y \leq 2x + 2 \end{cases}$$

