

## Section 5.4 Systems of Inequalities

**Objective:** In this lesson you learned how to sketch the graphs of inequalities in two variables and solve systems of inequalities and how to use systems of inequalities to model and solve real-life problems.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

Solution of an inequality

Graph of an inequality

Linear inequalities

Solution of a system of inequalities

### I. The Graph of an Inequality (Pages 401–402)

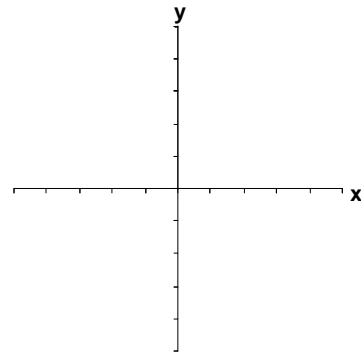
To sketch the graph of an inequality in two variables, . . .

#### *What you should learn*

How to sketch the graphs of inequalities in two variables

The solution points for the inequality  $y < 3x + 5$  lie \_\_\_\_\_  
the line  $y = 3x + 5$ .

**Example 1:** Sketch the graph of the linear inequality  $y \geq 2$ .



**II. Systems of Inequalities** (Pages 403–405)

To sketch the graph of a system of inequalities in two variables, . . .

***What you should learn***  
How to solve systems of inequalities

To find the vertices of the solution region for a system of three linear inequalities, . . .

**III. Applications of Systems of Inequalities** (Pages 406–407)

The \_\_\_\_\_ is defined by the price  $p$  and the number of units  $x$  that satisfy both the demand and supply equations.

***What you should learn***  
How to use systems of inequalities in two variables to model and solve real-life problems

Consumer surplus is defined as . . .

Producer surplus is defined as . . .

The consumer surplus is a measure of the amount that consumers would have been willing to pay \_\_\_\_\_  
\_\_\_\_\_. Producer surplus is a measure of the amount that producers would have been willing to receive \_\_\_\_\_.

**Homework Assignment**

Page(s)

Exercises