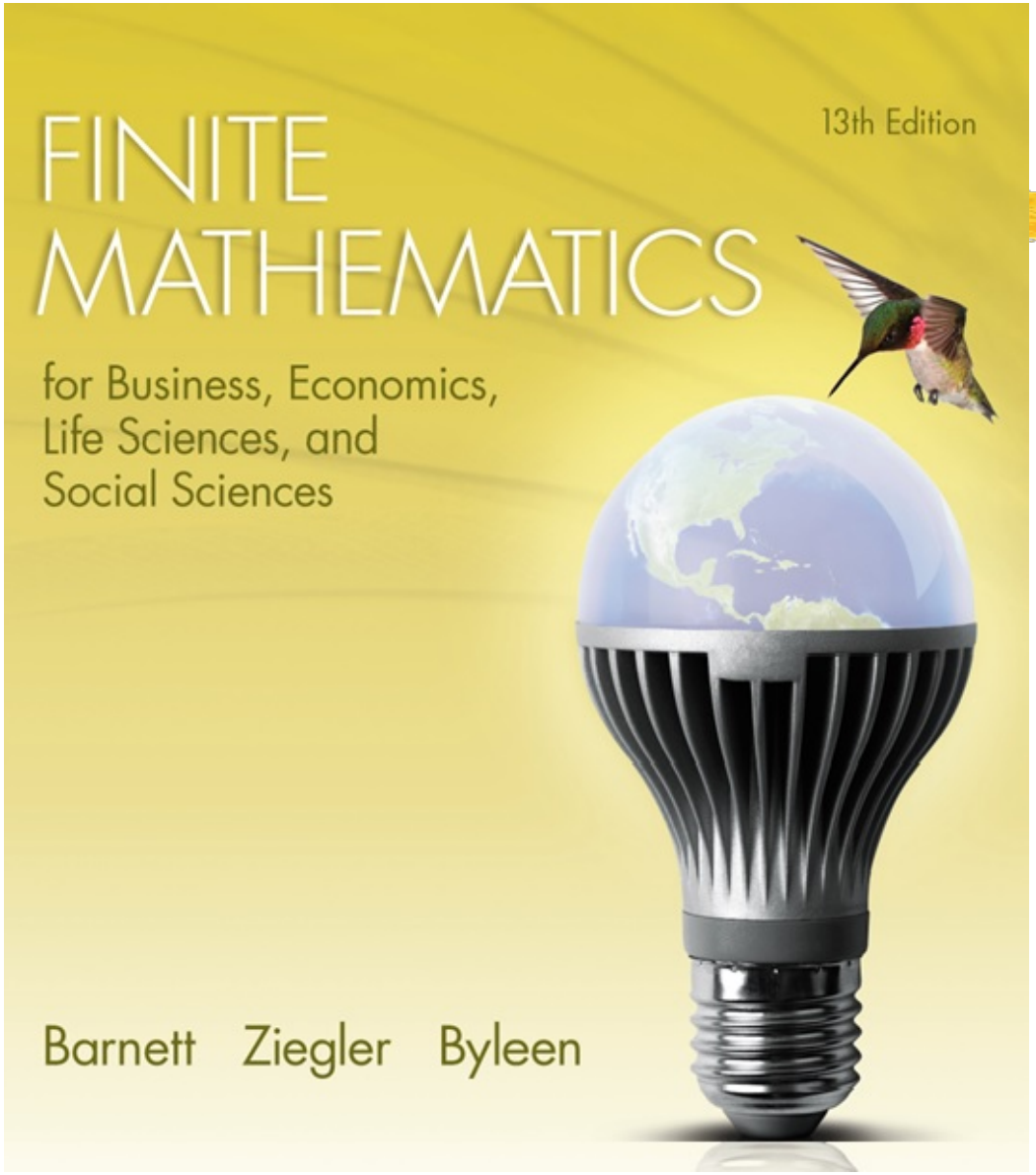

Chapter 5

Linear Inequalities and Linear Programming

Section R

Review

Chapter 5 Review
Important Terms, Symbols, Concepts

- 5.1 Linear Inequalities in Two Variables
  - A line divides the plane into two regions called **half planes.**
    - A vertical line divides the plane into **left** and **right half planes**
    - A nonvertical line divides it into **upper** and **lower half planes**.
    - In either case, the dividing line is called the **boundary line** of each half-plane.

Chapter 5 Review

- 5.1 Linear Inequalities in Two Variables (continued)
  - The **graph of a linear inequality** is the half plane obtained by following the procedure in this section.
  - The variables in an applied problem are often required to be **nonnegative**.

Chapter 5 Review

- 5.2 Systems of Linear Inequalities in Two Variables
  - The **solution region** (also called the **feasible region**) of a system of linear inequalities is the graph of all ordered pairs that simultaneously satisfy all the inequalities in the system.
  - A **corner point** of a solution region is a point in the region that is the intersection of two boundary lines.
  - A solution region is **bounded** if it can be enclosed in a circle and **unbounded** if it can not.

Chapter 5 Review

- 5.3 Linear Programming in Two Dimensions: Geometric Approach
  - The problem of finding the optimal (maximum or minimum) value of a linear objective function on a feasible region is called a **linear programming problem.**
  - The optimal value (if it exists) of the objective function in a linear programming problem must occur at one (or more) of the corner points of the feasible region. Existence criteria are described and a solution procedure is listed in this section.