Design and Analysis of Algorithms

5.3 Linear Programming

Daniel Shannon

May 5th, 2022

5.3.2

- You have a store that makes and sells calculators.
- Demand tells you to produce at least 100 scientific calculators and 80 graphing calculators per day.
- You can make at most 200 scientific calculators and 170 graphing calculators each day.
- Because of a contract, you must produce at least 200 calculators per day.
- Each scientific calculator gives you a $2 loss, and each graphing calculator gives you a $5 profit.

Formulate this as a linear programming problem

- x_0 scientific calculator
- x_1 graphing calculator
- p profit

$$100 \leq x_0 \leq 200$$

$$80 \leq x_1 \leq 170$$

$$x_0 + x_1 \geq 200$$

$$p = -2x_0 + 5x_1$$