Section 6.2: Applications of Extrema

In this section we will utilize what we know about finding maximum and minimum values of functions to solve some of the most interesting problems we will encounter. In each of these problems, we will be required to build the function we wish to optimize, and then to use calculus to find the maximum or minimum value of the function.

Examples:

1. At a price of \$6 per ticket, a musical theater group can fill every seat in the theater, which has a capacity of 1700. For every additional dollar charged, the number of people buying tickets decreases by 85. What ticket price maximizes revenue and how many people will attend?

 $\mathbf{2}$

2. A baseball team is trying to determine what price to charge for tickets. At a price of \$10 per ticket, it averages 50,000 people per game. For every increase of \$1, it loses 5000 people. Every person at the game spends an average of \$5 on concessions. What price per ticket should be charged in order to maximize revenue?