4. A company that charters a boat for tours around the Gulf Islands can sell 200 tickets at $50 each. For every $10 increase in the ticket price, 5 fewer tickets will be sold.

a) Represent the number of tickets sold as a function of the selling price.

b) Represent the revenue as a function of the selling price.

c) Sketch the function. What selling price will provide the maximum revenue? What is the maximum revenue?

6. Computer programs are sold to students for $25 each. Two hundred students are willing to buy them at that price. For every $5 increase in price, there are 20 fewer students willing to buy the software.

a) Represent the sales revenue as a function of the price. Sketch the function.

b) What is the maximum revenue?

c) What range of prices will give a sales revenue that exceeds $5400?

7. The daily profit, P dollars, of a cotton candy vendor at the fair is described by the function $P = -60x^2 + 240x - 80$, where x dollars is the selling price of a bag of cotton candy.

a) What should the selling price of a bag of cotton candy be to maximize daily profits?

b) What is the maximum daily profit?

10. On a forward somersault dive, a diver's height, h metres, above the water is given by $h(t) = -4.9t^2 + 6t + 3$, where t is the time in seconds after the diver leaves the board.

a) Graph the function.

b) Determine the diver's maximum height above the water.

c) How long does it take the diver to reach the maximum height?

d) For how long is the diver higher than 3 m above the water?

4. a) $n = 225 - 0.5s$ b) $R = -0.5s^2 + 225s$
c) $s = \$225.00$, $R = \$25\,312.50$
d) $\$120.00 < s < \$320.00$
6. a) $R = -4s^2 + 300s$ b) $5625
c) $\$30 < s < \$45$
7. a) $2.00 b) $160.00
10. b) 4.84 m c) 0.61 s d) About 1.2 s