
The Chapter Problem—Fundraising: Questions

Section 4.2

- CP1.** Use the survey data on page 300 and the total number of students in the school to estimate the number of T-shirts that should sell at each price.
- CP2.** Enter your data from CP1 into a graphing calculator. Do a linear regression to obtain a demand function relating price to the number of T-shirts sold. Round the coefficients to two decimal places.
- CP3.** Write the revenue function, based on your demand function from CP2.
- CP4.** Graph the revenue function and describe its shape. What is its domain?

Section 4.3

- CP5.** Use the data in the first table on page 300 to write a cost function for each supplier.
- CP6.** Use your revenue function from CP3 and the cost function for the first supplier in question CP5 to find the corresponding profit function.
- CP7.** Graph your profit function from question CP6. State the domain and determine the break-even points.
- CP8.** Repeat questions CP6 and CP7 for the other suppliers.
- CP9.** Which supplier would you recommend?

Section 4.4

- CP10.** Examine each profit function you obtained in CP6. Will the student council be able to raise \$7000 by selling T-shirts?
- CP11.** Determine the maximum amount the student council could raise on the basis of each supplier.
- CP12.** Find the number of T-shirts sold in each case in CP11.
- CP13.** Which T-shirt supplier would you choose? Explain your choice.

Section 4.8

- CP14.** If $C(x)$ is the cost of producing x items, then the average cost function is $AC(x) = \frac{C(x)}{x}$. Find the average cost function for your chosen supplier. Graph this function and state its domain.
- CP15.** How many T-shirts must be sold so that the average cost per T-shirt is less than \$5?
- CP16.** If $P(x)$ is the profit earned from producing and selling x items, then the average profit is modelled by the function $AP(x) = \frac{P(x)}{x}$. Find the average profit function for your chosen supplier. Graph this function and state the domain.
- CP17.** At what point is the average profit a maximum?

Section 4.11

- CP18.** Write a proposal, for this fundraiser, that the representative could present to the school council. Include all of your graphs and analyses.