

Section 1.4

- 13.** A company that sells backpacks must decide on a supplier. One supplier bids \$13 per backpack and a fixed cost of \$15,000. Another supplier bids \$15.50 per backpack and a fixed cost of \$12,000.
- Determine models $C_1(x)$ and $C_2(x)$ for the total cost of producing x backpacks. What is the cost of producing 2500 backpacks from each manufacturer?
 - Use a graphing utility to determine a graph of each model in the same viewing window.
 - At what level of production x are the costs from the two manufacturers the same? Which manufacturer should the company select if the level of production will be less than this amount?
- 15.** A rancher wants to fence off a feedlot in the shape of a rectangle against an existing wall, so that only three sides need to be fenced. The rancher has 280 yards of fencing.
- Determine a model for the area of the feedlot as a function of its width w . What is the domain of the function?
 - Use a graphing utility to determine a graph of the model. What are the intercepts? Over what (approximate) intervals is the function increasing? Decreasing? Interpret your results.
 - Using a graphing utility, determine (to the nearest yard) the dimensions of the feedlot with greatest area. What is the maximum area?
- 28.** A video store rents 280 movies a day for a charge of \$2.75 per movie, but plans to decrease the charge. A survey of other stores indicates that each \$0.25 decrease in the rental fee raises daily rentals by 30.
- Determine an equation relating the rental price p and the number x of videos rented.
 - Determine a model for the daily revenue $R(x)$ as a function of the number x of videos rented.
 - Use a graphing utility to graph the model for revenue.
 - Using a graphing utility, determine (to the nearest 10) the number of videos rented that will maximize revenue.
 - To the nearest \$0.25, what rental fee p will maximize revenue?