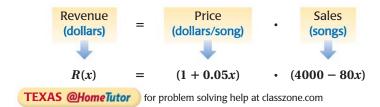## PROBLEM SOLVING

55. ONLINE MUSIC An online music store sells about 4000 songs each day when it charges $1 per song. For each $.05 increase in price, about 80 fewer songs per day are sold. Use the verbal model and quadratic function to find how the store can maximize daily revenue.

Revenue (dollars)	=	Price (dollars/song)	·	Sales (songs)
$R(x)$	=	$(1 + 0.05x)$	·	$(4000 - 80x)$

TEXAS @HomeTutor for problem solving help at classzone.com

56. DIGITAL CAMERAS An electronics store sells about 70 of a new model of digital camera per month at a price of $320 each. For each $20 decrease in price, about 5 more cameras per month are sold. Write a function that models the situation. Then tell how the store can maximize monthly revenue from sales of the camera.

TEXAS @HomeTutor for problem solving help at classzone.com

57. GOLDEN GATE BRIDGE Each cable joining the two towers on the Golden Gate Bridge can be modeled by the function

$$y = \frac{1}{9000}x^2 - \frac{7}{15}x + 500$$

where x and y are measured in feet. What is the height h above the road of a cable at its lowest point?

58. ⬇ **TAKS REASONING** A woodland jumping mouse hops along a parabolic path given by $y = -0.2x^2 + 1.3x$ where x is the mouse's horizontal position (in feet) and y is the corresponding height (in feet). Can the mouse jump over a fence that is 3 feet high? *Explain*.

59. ◆ **MULTIPLE REPRESENTATIONS** A community theater sells about 150 tickets to a play each week when it charges $20 per ticket. For each $1 decrease in price, about 10 more tickets per week are sold. The theater has fixed expenses of $1500 per week.

   a. Writing a Model Write a verbal model and a quadratic function to represent the theater's weekly profit.

   b. Making a Table Make a table of values for the quadratic function.

   c. Drawing a Graph Use the table to graph the quadratic function. Then use the graph to find how the theater can maximize weekly profit.

○ = WORKED-OUT SOLUTIONS on p. WS1   ⬇ = TAKS PRACTICE AND REASONING   ◆ = MULTIPLE REPRESENTATIONS