

37. **TX TAKS REASONING** The gross revenue R (in millions of dollars) from movie tickets sold and the average movie ticket price P (in dollars) in the United States during the period 1991–2002 can be modeled by

$$R = \frac{4700 - 74x}{1 - 0.053x} \quad \text{and} \quad P = 0.015x^2 + 4.1$$

where x is the number of years since 1991.

- Model** Write a model that gives the number T of movie tickets sold (in millions) as a function of x .
- Describe** Graph the model on a graphing calculator and describe how the number of tickets sold changed over time. Can you use the graph to describe how the gross revenue and ticket prices changed over time? *Explain* your reasoning.
- Compare** The table shows the actual number of tickets sold for each year during the period. Make a scatter plot of the data on the same screen as the graph of the model in part (b). *Compare* the scatter plot with the graph of the model.

Year	1991	1992	1993	1994	1995	1996
Tickets (millions)	1141	1173	1244	1292	1263	1339
Year	1997	1998	1999	2000	2001	2002
Tickets (millions)	1388	1481	1465	1421	1487	1639

38. **CHALLENGE** The total amount F (in billions of dollars) spent on food other than groceries and the amount E (in billions of dollars) spent at restaurants in the U.S. during the period 1977–2003 can be modeled by

$$F = \frac{88 + 9.2x}{1 - 0.0097x} \quad \text{and} \quad E = \frac{54 + 6.5x}{1 - 0.012x}$$

where x is the number of years since 1977. Write a model that gives the percent p (in decimal form) of the amount spent on food other than groceries that was spent at restaurants as a function of x . Approximate the percent that was spent at locations other than restaurants in 2002.



MIXED REVIEW FOR TAKS

TAKS PRACTICE at classzone.com

REVIEW

Lesson 12.3;
TAKS Workbook

39. **TX TAKS PRACTICE** The area of a rectangle is $4x^2 + 11x + 6$ square units, and the width is $x + 2$ units. Which expression best describes the rectangle's length, in units? **TAKS Obj. 2**

(A) $x + 4$ (B) $2x + 3$ (C) $4x + 3$ (D) $4x + 2$

REVIEW

TAKS Preparation
p. 702;
TAKS Workbook

40. **TX TAKS PRACTICE** A cylindrical tank has a radius of 2 feet and a height of 8.5 feet. The tank is filled with water to the top. If water can be pumped out of the tank at a rate of 36 cubic feet per minute, about how long will it take to empty the tank? **TAKS Obj. 8**

(F) 1 min (G) 3 min (H) 5 min (J) 22 min

