

PROBLEM

WHAT IF? Suppose the owner decided to sell the car when it was worth about \$28,000. In what year did the owner sell the car?

METHOD

Using a Spreadsheet To solve the equation algebraically, you need to substitute 28,000 for C and solve for t , but you have not yet learned how to solve this type of equation. An alternative to the algebraic approach is using a spreadsheet.

STEP 1 Use the same spreadsheet as on the previous page.

STEP 2 Find when the value of the car is about \$28,000.

	A	B
1	Years since 1984, t	Value, C (dollars)
2	0	11000
...
15	13	26188.03
16	14	27995.01

The value of the car is about \$28,000 when $t = 14$.

► The owner sold the car in 1998.

PRACTICE

- TRANSPORTATION** In 1997 the average intercity bus fare for a particular state was \$20. For the period 1997–2000, the bus fare increased at a rate of about 12% each year.
 - Write a function that models the intercity bus fare for the period 1997–2000.
 - Find the intercity bus fare in 1998. Use two different methods to solve the problem.
 - In what year was the intercity bus fare \$28.10? *Explain* how you found your answer.
- ERROR ANALYSIS** Describe and correct the error in writing the function for part (a) of Exercise 1.

Let b be the bus fare (in dollars) and t be the number of years since 1997.

$$b = 20(0.12)^t$$

✗
- TECHNOLOGY** A computer's Central Processing Unit (CPU) is made up of transistors. One manufacturer released a CPU in May 1997 that had 7.5 million transistors. The number of transistors in the CPUs sold by the company increased at a rate of 3.9% per month.
 - Write a function that models the number T (in millions) of transistors in the company's CPUs t months after May 1997.
 - Use a spreadsheet to find the number of transistors in a CPU released by the company in November 2000.
- HOUSING** The value of a home in 2002 was \$150,000. The value of the home increased at a rate of about 6.5% per year.
 - Write a function that models the value of the home over time.
 - Use a spreadsheet to find the year in which the value of the home was about \$200,000.