

## 7-7 Extra Practice Writing Exponential Functions

- 1. POPULATION** The population of New York City increased from 8,192,426 in 2010 to 8,550,405 in 2015. The annual rate of population increase for the period was about 0.9%.
- a. Write an equation for the population  $t$  years after 2010.  $P = 8,192,426(1.009)^t$
- b. Use the equation to predict the population of New York City in 2025.  
**about 9,370,872**
- 2. SAVINGS** The Fresh and Green Company has a savings plan for its employees. If an employee makes an initial contribution of \$1000, the company pays 8% interest compounded quarterly.
- a. If an employee participating in the plan withdraws the balance of the account after 5 years, how much will be in the account? **\$1485.95**
- b. If an employee participating in the plan withdraws the balance of the account after 35 years, how much will be in the account? **\$15,996.47**
- 3. HOUSING** Mr. and Mrs. Boyce bought a house for \$196,000 in 2007. The real estate broker indicated that houses in their area were appreciating at an average annual rate of 1.3%. If the appreciation remained steady at this rate, what was the value of the Boyce's home in 2020? **about \$231,835**
- 4. MANUFACTURING** Zeller Industries bought a piece of weaving equipment for \$60,000. It is expected to depreciate at an average rate of 10% per year.
- a. Write an equation for the value of the piece of equipment after  $t$  years.  
 $E = 60,000(0.90)^t$
- b. Find the value of the piece of equipment after 6 years. **about \$31,886**
- 5. FINANCES** Kyle saved \$500 from a summer job. He plans to spend 10% of his savings each week on various forms of entertainment. At this rate, how much will Kyle have left after 15 weeks? **\$102.95**
- 6. TRANSPORTATION** Tiffany's mother bought a car for \$9000 five years ago. She wants to sell it to Tiffany based on a 15% annual rate of depreciation. At this rate, how much will Tiffany pay for the car? **about \$3993**