UNIT 4 • MODELING AND ANALYZING EXPONENTIAL FUNCTIONS
Lesson 3: Geometric Sequences

Practice 4.3.1: Geometric Sequences   **A**

For problems 1–4, find the common ratio and write the explicit formula for the nth term of each geometric sequence.

1. 1, 2, 4, 8, 16, …

2. $10, -2, \dfrac{2}{5}, -\dfrac{2}{25}, \ldots$

3. 5, 15, 45, 135, …

4. 320, –80, 20, –5, …

Use the given information to complete problems 5–10.

5. Find the first five terms of the geometric sequence defined as follows:

   $a_n = a_{n-1}(3);\ a_1 = -1$

6. Find the first five terms of the geometric sequence defined as follows:

   $a_n = a_{n-1}\left(\dfrac{1}{4}\right);\ a_1 = 216$

7. Jade is training for a marathon. During her first week of training, each run she completes is 90 minutes long. She increases the time she runs by 10% each week. Write the explicit formula to represent how many minutes she runs after n weeks.

8. You are opening a savings account with $500 that you have saved. The bank offers 3.2% interest, compounded yearly. How much money will you have in your account after 7 years?

9. Nigel is participating in a read-a-thon. The number of pages he reads each night follows a geometric sequence. On the second day of the read-a-thon, Nigel read 8 pages. On the fifth day of the read-a-thon, he read 64 pages. Write an explicit formula to represent this scenario.

10. Mr. Galloway purchased a car for $20,000. The car retains 85% of its value each year. How much will the car be worth in 5 years?