Name_____ Date _____

7.3 Practice B

In Exercises 1–4, tell whether the sequence is geometric. Explain your reasoning.

1. 3, 6, 18, 72, 360, …

2. 162, 54, 18, 6, 2, …

3. 0.7, 3.5, 17.5, 87.5, 437.5, …

4. $\frac{5}{3}, \frac{10}{3}, \frac{20}{3}, \frac{40}{3}, \frac{80}{3}, \ldots$

5. Write a rule for the geometric sequence with the given description.

a. The first term is -12, and each term is 7 times the previous term.

b. The first term is 62, and each term is $\frac{1}{2}$ times the previous term.

In Exercises 6–9, write a rule for the *n*th term of the sequence. Then find a_7.

6. 9, 18, 36, 72, …

7. 80, 20, 5, $\frac{5}{4}$, …

8. 3, $\frac{6}{5}, \frac{12}{25}, \frac{24}{125}, \ldots$

9. 1.2, -2.4, 4.8, -9.6, …

In Exercises 10–13, write a rule for the *n*th term of the sequence. Then graph the first six terms of the sequence.

10. $a_3 = 50,\ r = 5$

11. $a_2 = 18,\ r = \frac{1}{3}$

12. $a_4 = -378,\ r = 3$

13. $a_5 = 1,\ r = -\frac{1}{4}$

14. Describe and correct the error in writing a rule for the *n*th term of the geometric sequence for which $a_3 = 147,\ r = 7$.

$$a_n = a_1 r^{n-1}$$
$$a_n = 147(7)^{n-1}$$

15. You are buying a new boat. You take out a 5-year loan for \$20,000. The annual interest rate of the loan is 4%. You can calculate the monthly payment M (in dollars) for a loan using the formula $M = \frac{L}{\sum_{k=1}^{t}\left(\frac{1}{1+i}\right)^k}$, where L is the loan amount (in dollars), i is the monthly interest rate (in decimal form), and t is the term (in months). Calculate the monthly payment.