Name _____ Date _____

7.3 Practice A

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

1. 64, 32, 16, 8, 4, …

2. 88, 66, 44, 22, 0, …

3. 0.3, 1.2, 2.1, 3, 3.9, …

4. 0.8, 4.8, 28.8, 172.8, …

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

a. The first term is -5, and each term is 3 times the previous term.

b. The first term is 54, and each term is $\frac{1}{6}$ times the previous term.

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

6. 3, 6, 12, 24, …

7. 7, 21, 63, 189, …

8. 192, 96, 48, 24, …

9. 36, 24, 16, $\frac{32}{3}$, …

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. $a_3 = 9,\ r = 3$

11. $a_2 = 12,\ r = 4$

12. $a_4 = 5,\ r = \frac{1}{2}$

13. $a_5 = -208,\ r = 2$

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

$$\begin{aligned} a_n &= ra_1^{n-1} \\ 147 &= 7a_1^2 \\ 21 &= a_1^2 \\ \sqrt{21} &= a_1 \\ a_n &= 7\sqrt{21}^{n-1} \end{aligned}$$

15. You are buying a new car. You take out a 3-year loan for \$10,000. The annual interest rate of the loan is 6%. You can calculate the monthly payment M (in dollars) for a loan using the formula $M = \dfrac{L}{\sum_{k=1}^{t}\left(\frac{1}{1+i}\right)^k}$, 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.