**8-1 Lesson Master**

**SKILLS** Objectives A and B

In 1–6, a sequence is described. a. Identify the formula as recursive or explicit. b. Find the first four terms. c. Find the 10th term.

1. \[
\begin{align*}
  r_1 &= -3 \\
  r_n &= -2r_{n-1}, \text{ for all integers } n > 1
\end{align*}
\]
   a. \underline{ } 
   b. \underline{ } 
   c. \underline{ }

2. \[
\begin{align*}
  c_1 &= -4 \\
  c_2 &= c_{n-1} + 1, \text{ for all integers } n \geq 2
\end{align*}
\]
   a. \underline{ } 
   b. \underline{ } 
   c. \underline{ }

3. \[
\begin{align*}
  v_1 &= 0.7 \\
  v_n &= 3v_{n-1} - 0.3, \text{ for all integers } n \geq 2
\end{align*}
\]
   a. \underline{ } 
   b. \underline{ } 
   c. \underline{ }

4. \[
  t_n = -2n^3 + 24n^2 - 15n + 9
\]
   a. \underline{ } 
   b. \underline{ } 
   c. \underline{ }

5. \[
\begin{align*}
  k_1 &= 5 \\
  k_n &= (k_{n-1})^2, \text{ for all integers } n \geq 2
\end{align*}
\]
   a. \underline{ } 
   b. \underline{ } 
   c. \underline{ }

6. \[
  j_n = 11 + 5(n - 1)
\]
   a. \underline{ } 
   b. \underline{ } 
   c. \underline{ }

7. Write an explicit formula for the sequence defined in Question 2. \underline{ }

8. Write a recursive formula for the sequence defined in Question 6. \underline{ }

9. Write explicit and recursive formulas for the arithmetic sequence whose first eight terms are 23, 19, 15, 11, 7, 3, -1, -5, \ldots .

   \underline{ } \hspace{2cm} \underline{ }

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*Functions, Statistics, and Trigonometry*
PROPERTIES  Objective D

In 10–15, identify the sequences in Questions 1–6, respectively, as arithmetic or not arithmetic.

10. Question 1
11. Question 2
12. Question 3
13. Question 4
14. Question 5
15. Question 6

USES  Objective G

16. Bert is beginning to train for the annual bicycle ride across Iowa. His plan is to ride every day, starting with 30-km rides the first week and increasing the length by 6 km each subsequent week.

a. What is the length of each of Bert's rides in the second week of his training?

b. Write a recursive formula for the length of Bert's training rides in the \( n \)th week.

c. Write an explicit formula for the length of Bert's training rides in the \( n \)th week.

d. In what week will the length of Bert's training rides be 102 km?

REPRESENTATIONS  Objective J

17. Graph the first ten terms of the sequence for Bert's training rides in Question 16.

18. Graph the first ten terms of the sequence in Question 6.