

9-1 Practice

Form G

Find the first six terms of each sequence.

1. $a_n = -2n + 1$

2. $a_n = n^2 - 1$

3. $a_n = 2n^2 + 1$

4. $a_n = 1^n + 1$

5. $a_n = 2^n + 2$

6. $a_n = 2n^2 - n$

7. $a_n = 4n + n^2$

8. $a_n = \frac{1}{3}n^3$

9. $a_n = (-2)^n$

Write a recursive definition for each sequence.

10. $-14, -8, -2, 4, 10, \dots$

11. $6, 5.7, 5.4, 5.1, 4.8, \dots$

12. $1, -2, 4, -8, 16, \dots$

13. $1, 3, 9, 27, \dots$

14. $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots$

15. $\frac{2}{3}, 1, 1\frac{1}{3}, 1\frac{2}{3}, 2, \dots$

16. $36, 39, 42, 45, 48, \dots$

17. $36, 30, 24, 18, 12, \dots$

18. $9.6, 4.8, 2.4, 1.2, 0.6, \dots$

Write an explicit formula for each sequence. Find the twentieth term.

19. $7, 14, 21, 28, 35, \dots$

20. $2, 8, 14, 20, 26, \dots$

21. $5, 6, 7, 8, 9, \dots$

22. $-1, 0, 1, 2, 3, \dots$

23. $3, 5, 7, 9, 11, \dots$

24. $0.8, 1.6, 2.4, 3.2, 4, \dots$

25. $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \frac{5}{4}, \dots$

26. $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \frac{1}{10}, \dots$

27. $\frac{2}{3}, 1\frac{2}{3}, 2\frac{2}{3}, 3\frac{2}{3}, 4\frac{2}{3}, \dots$

Find the eighth term of each sequence.

28. $1, 3, 5, 7, 9, \dots$

29. $400, 200, 100, 50, 25, \dots$

30. $0, -2, -4, -6, -8, \dots$

31. $1, 2, 4, 8, 16, \dots$

32. $44, 39, 34, 29, 24, \dots$

33. $0.7, 0.8, 0.9, 1.0, 1.1, \dots$

34. $4, 11, 18, 25, 32, \dots$

35. $1\frac{1}{4}, 2\frac{1}{2}, 5, 10, 20, \dots$

36. $-6, -9, -12, -15, -18, \dots$

37. A man swims 1.5 mi on Monday, 1.6 mi on Tuesday, 1.8 mi on Wednesday, 2.1 mi on Thursday, and 2.5 mi on Friday. If the pattern continues, how many miles will he swim on Saturday?

9-1

Practice (continued)

Form G

Determine whether each formula is *explicit* or *recursive*. Then find the first five terms of each sequence.

38. $a_n = \frac{1}{3}n$

39. $a_n = n^2 - 6$

40. $a_1 = 5, a_n = 3a_{n-1} - 7$

41. $a_n = \frac{1}{2}(n-1)$

42. $a_1 = 5, a_n = 3 - a_{n-1}$

43. $a_1 = -4, a_n = 2a_{n-1}$

44. **Error Analysis** Your friend says the explicit formula for the sequence 1, 8, 27, 64 is $a_n = n^2$. Is she correct? Explain.
45. **Writing** Explain how to find an explicit formula for a sequence.
46. The first figure of a fractal contains one segment. For each successive figure, six segments replace each segment.
- How many segments are in each of the first four figures of the sequence?
 - Write a recursive definition for the sequence.
47. The sum of the measures of the exterior angles of any polygon is 360° . All the angles have the same measure in a regular polygon.
- Find the measure of one exterior angle in a regular hexagon (six angles).
 - Write an explicit formula for the measure of one exterior angle in a regular polygon with n angles.
 - Why would this formula not be meaningful for $n = 1$ or $n = 2$?
48. **Reasoning** In order to find a term in a sequence, its position in the sequence is doubled and then two is added. What are the first ten terms in the sequence?
49. **Writing** Explain the difference between a recursive and an explicit formula.
50. **Open-Ended** Write five terms in a sequence. Describe the sequence using a recursive or explicit formula.