12-2 Practice

Practice

Geometric Sequences

Determine whether each sequence is geometric. If so, find the common ratio.

1. 3, 9, 27, 81, …

2. 4, 8, 16, 32, …

3. 4, 8, 12, 16, ...

4. 4, −8, 16, −32, ...

5. 1, 0.5, 0.25, 0.125, ...

6. 100, 30, 9, 2.7, ...

7. −5, 0, 5, 10, ...

8. 64, −32, 16, −8, ...

9. 1, 4, 9, 16, ...

Find the tenth term of each geometric sequence.

10. 2, 4, 8, ...

11. 1, 3, 9, ...

12. −2, 6, −18, ...

13. −3, 9, −27, ...

14. −3, −12, −48, ...

15. −5, 25, −125, ...

16. $\frac{1}{3}, \frac{1}{9}, \frac{1}{27} ...$

17. 0.3, 0.6, 1.2, ...

18. $\frac{1}{4}, \frac{1}{2}, 1, ...$

19. When a pendulum swings freely, the length of its arc decreases geometrically. Find each missing arc length.
   a. 20th arc is 20 in.; 22nd arc is 18.5 in.
   b. 8th arc is 27 mm; 10th arc is 3 mm
   c. 5th arc is 25 cm; 7th arc is 1 cm
   d. 100th arc is 18 ft; 98th arc is 2 ft

Find the missing term of each geometric sequence. It could be the geometric mean or its opposite.

20. 4, ■ , 16, ...

21. 9, ■ , 16, ...

22. 2, ■ , 8, ...

23. 3, ■ , 12, ...

24. 2, ■ , 50, ...

25. 4, ■ , 5.76, ...

26. 625, ■ , 25, ...

27. $\frac{1}{3}$, ■ , 3, ...

28. 0.5, ■ , 0.125, ...

Identify each sequence as *arithmetic, geometric,* or *neither*. Then find the next two terms.

29. 9, 3, 1, $\frac{1}{3}$, …

30. 1, 0, −2, −5, …

31. 2, −2, 2, −2, ...

32. −3, 2, 7, 12, ...

33. 1, −2, −5, −8, ...

34. 1, −2, 3, −4, ...

Write an explicit formula for each sequence. Then generate the first five terms.

35. $a_1 = 3, r = −2$

36. $a_1 = 5, r = 3$

37. $a_1 = −1, r = 4$

38. $a_1 = −2, r = −3$

39. $a_1 = 32, r = −0.5$

40. $a_1 = 2187, r = \frac{1}{3}$