LESSON 6.1 Skills Practice

Name _____ Date _____

Sequence—Not Just Another Glittery Accessory

Arithmetic and Geometric Sequences

Vocabulary

Choose the term from the box that best completes each statement.

arithmetic sequence	geometric sequence
finite sequence	infinite sequence

1. A(n) _____ is a sequence of numbers in which the ratio between any two consecutive terms is a constant.
2. If a sequence terminates it is called a(n) _____.
3. A(n) _____ is a sequence of numbers in which the difference between any two consecutive terms is a constant.
4. If a sequences goes on forever it is called a(n) _____.

Problem Set

Analyze each sequence and identify whether the sequence is arithmetic, geometric, or neither. If the sequence is arithmetic, identify the common difference. If the sequence is geometric, identify the common ratio.

1. 

The sequence is geometric.

$r = 3$

2. 

3. 

4. −4, −7, −10, −13 . . .

5. 3, 5, 9, 15

6. $\frac{1}{3}, -\frac{1}{9}, \frac{1}{27}, -\frac{1}{81} \ldots$

Create your own sequence given the type indicated. Include the first four terms.

7. finite arithmetic sequence

Answers will vary.

−3, −7, −11, −15

8. infinite arithmetic sequence

9. finite geometric sequence

10. infinite geometric sequence

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11. finite sequence that is neither arithmetic or geometric

12. infinite sequence that is neither arithmetic or geometric

Name _____ Date _____

Identify each sequence as arithmetic or geometric. Write a recursive formula for each sequence. Use the formula to determine the next term of each sequence.

13. 5, 3, 1, −1 . . .

The sequence is arithmetic.

$a_n = a_{n-1} + d$

$d = -2$

$a_n = a_{n-1} + -2$

$a_1 = 5$

$a_5 = a_4 + -2$

$= -1 + -2$

$= -3$

14. −2, −4, −8, −16 . . .

15. $\frac{1}{4}, -\frac{1}{4}, \frac{1}{4}, -\frac{1}{4}$ . . .

16. 0.2, 0.4, 0.6, 0.8, 1 . . .

17. 7, 9.3, 11.6, 13.9, 16.2 . . .

18. $\frac{1}{10}, \frac{1}{100}, \frac{1}{1000}$ . . .

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Identify each sequence as arithmetic or geometric. Write an explicit formula for each sequence. Use the formula to determine the 35th term of each sequence.

19. 1, 2, 4, 8, 16 . . .

The sequence is geometric.

$g_1 = 1, r = 2$

$g_n = g_1 \cdot r^{n-1}$

$g_n = 1 \cdot 2^{n-1}$

$n = 1, 2, 3 \ldots$

$g_{35} = 2^{34}$

$\approx 1.72 \times 10^{10}$

20. 3, 6, 12, 24 . . .

21. 3.1, 1.1, −0.9 . . .

22. 0.2, 1, 1.8, 2.6 . . .

23. 3, −6, 12, −24 . . .

24. $-\frac{1}{4}, -\frac{3}{8}, -\frac{1}{2}, -\frac{5}{8} \ldots$

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