Assignment

Write

Complete each sentence.

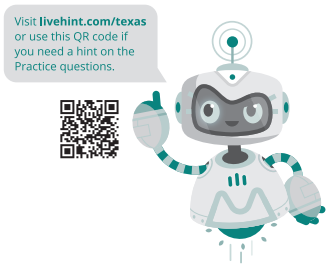
1. A sequence which terminates is called a(n) _____ .
2. A(n) _____ is an individual number, figure, or letter in a sequence.
3. A(n) _____ is a pattern involving an ordered arrangement of numbers, geometric figures, letters, or other objects.
4. A sequence which continues forever is called a(n) _____ .

Remember

An arithmetic sequence is a sequence of numbers in which the difference between any two consecutive terms is a constant.

A geometric sequence is a sequence of numbers in which the ratio between any two consecutive terms is a constant.

Practice



Consider the first 2 terms of the sequence 28, 14, . . .

1. Determine whether the sequence is arithmetic or geometric. Explain your reasoning.
2. Suppose the sequence 28, 14, . . . is arithmetic.
   a. Determine the common difference.
   b. List the next 3 terms in the sequence. Explain your reasoning.
   c. Determine whether the sequence is finite or infinite. Explain your reasoning.
3. Suppose the sequence 28, 14, . . . is geometric.
   a. Determine the common ratio.
   b. List the next 3 terms in the sequence. Explain your reasoning.
   c. Determine whether the sequence is finite or infinite. Explain your reasoning.
4. Using the first two terms 28 and 14, write the next 3 terms of a sequence that is neither arithmetic nor geometric.

Stretch

Consider the first 2 terms of the sequence -6, 18, . . .

1. Determine the next 5 terms in the sequence if the sequence is arithmetic. Then write a function to represent the arithmetic sequence.
2. Determine the next 5 terms in the sequence if the sequence is geometric. Then write a function to represent the geometric sequence.

Review

1. Juan updates his blog regularly with trivia questions for readers to answer. The month he started this, there were 8 trivia questions on his blog. The next month, there were 19 trivia questions on his blog. The month after that, there were 30 trivia questions on his blog.
   a. Think about the number of trivia questions on Juan's blog each month. Describe the pattern.
   b. Determine how many trivia questions will be on Juan's blog during months 4, 5, and 6.
   c. Represent the number of trivia questions on Juan's blog for the first 6 months as a numeric sequence. Then represent the sequence using a table of values.

2. Contestants on a popular game show have an opportunity to randomly select a cash prize in 6 hidden containers. The highest possible cash prize is $25,000. The next highest prize is $5000, and the one after that is $1000.
   a. Think about how the value of the prize changes from one container to the next. Describe the pattern.
   b. Determine the prize values in the remaining containers.
   c. Represent the prize values in all six containers as a numeric sequence. Then represent the sequence using a table of values.

3. Enter each function into your graphing calculator to determine the shape of its graph. Then complete the table based on the characteristics of the function family.

Function	Function Family	Increasing/ Decreasing	Absolute Maximum/ Minimum	Curve/ Line
$h(x) = 5x^2 - 2.8x + 40$				
$g(x) = 30x - 550$				

4. Identify the function family.