

Course Algebra/Trig
Lesson 1.1
Topic Recursively Defined Sequences
Pages 28-37

**PRE-PLANNING FOR UNIT/LESSON DEVELOPMENT:
What will students know and be able to do at the end of this lesson?**

CONCEPTS IN 1.1

- ◆ Every recursive formula requires a starting term.
- ◆ Terms in an arithmetic sequence can be generated by repeated addition.
- ◆ Terms in a geometric sequence can be generated by repeated multiplication.
- ◆ The recursive rule for an arithmetic sequence has the form $u_n = u_{n-1} + d$
- ◆ The recursive rule for a geometric sequence has the form $u_n = r \cdot u_{n-1}$
- ◆ Recursive formulas can be generated by analyzing the common differences or factors in tables of values, by analyzing the graphs, and by analyzing the context.
- ◆ Recursive rules can be used to model data sets that are not precise or complete.

SKILLS IN 1.1

- ◆ Use a recursive rule to generate a sequence of values
- ◆ Use a graphing calculator to generate a sequence of values
- ◆ Write a recursive formula from a context
- ◆ Write a recursive formula from a table of values
- ◆ Write a recursive formula from an equation
- ◆ Determine whether a sequence is arithmetic or geometric by looking at the formula, the table, the graph, or the context
- ◆ Find the common difference in an arithmetic sequence by subtracting consecutive values
- ◆ Find the common ratio in a geometric sequence by dividing consecutive values
- ◆ Estimate arithmetic and geometric sequences from inexact data
- ◆ Interpolate missing data in both arithmetic and geometric sequences

NEW VOCABULARY

recursion, sequence, term, general term, recursive formula, recursive rule, common difference, arithmetic sequence, common ratio, geometric sequence

NEW NOTATION

u_1 ; u_n ; u_{n-1} ; $u_n = u_{n-1} + d$; $u_n = r \cdot u_{n-1}$