Situations and Sequence Types

Lesson 10

Learning Target

I can define a sequence using an equation.

Let’s decide what type of sequence we are looking at and how to represent it.

10.1 Describing Growth

1. Here is a geometric sequence. 16, 24, 36, 54, 81

   What is the growth factor?

1. One way to describe its growth is to say it's growing by ______ % each time.

   What number goes in the blank for the sequence 16, 24, 36, 54, 81?

Activity Synthesis

How can you define the nth term of the sequence?

16, 24, 36, 54, 81

Where in that function do you see the growth rate and growth factor?

Calculate the growth factor and the growth rate of each of the following:

1. 64, 80, 100, 125
2. 64, 112, 196, 343
3. 64, 128, 256, 512
4. 125, 100, 80, 64

10.2 Finding Population Patterns

years since 1990	Population A	Population B
0	23,000	3,125
1	29,000	3,750
2	35,000	4,500
3	41,000	5,400
4	47,000	6,480

What are some ways you could figure out if the sequences represented by the populations are arithmetic, geometric, or neither?

Activity Synthesis

What kind of sequence is represented by Population A?

What is the recursive or nth term definition for Population A?

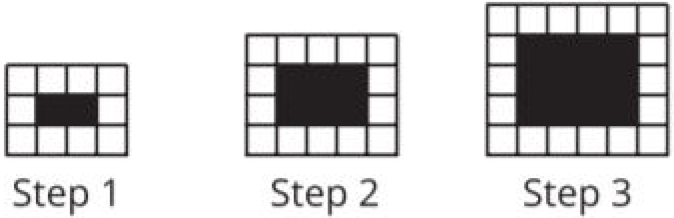
What kind of sequence is represented by Population B?

What is the recursive or nth term definition for Population B?

years since 1990	Population A	Population B
0	23,000	3,125
1	29,000	3,750
2	35,000	4,500
3	41,000	5,400
4	47,000	6,480

10.3 Finding Square Patterns

Define the sequence W so that $W(n)$ is the number of white squares in Step n, and define the sequence B so that $B(n)$ is the number of black squares in Step n.



Complete the task with your partner.

Activity Synthesis

- Arithmetic sequences always have a rate of change that can be interpreted in representations of the sequence.
- Graphs of arithmetic sequences appear linear where the slope is the rate of change.
- The definition for the nth term of an arithmetic sequence can be written like a linear equation.

- Geometric sequences always have a growth factor that can be interpreted in representations of the sequence
- Graphs of geometric sequences appear exponential and you can calculate the growth factor and growth rate given the coordinates of points on the graph.
- The definition for the nth term of a geometric sequence can be written like an exponential equation

Lesson Synthesis

Is one representation easier to use than another?