

Algebra Concepts – Unit 1 Lesson 3

Sequences

So far in this unit, you have learned to recognize different classes of functions and different patterns in tiles. In this lesson, you will learn that there are different types of numerical patterns that match up with classes of functions. You will also learn rules for distinguishing among linear patterns, exponential patterns and patterns that are neither linear nor exponential.

Class Examples

Find the next three numbers in each sequence.

1. 2, 5, 8, 11, _____, _____, _____
2. 3, 6, 12, 24, _____, _____, _____
3. 10, 8, 6, 4, _____, _____, _____
4. 32, 16, 8, 4, _____, _____, _____

Now explain what the rule is for getting each number in problem 4.

Definitions

Linear pattern – a sequence in which the same number is added or subtracted to each term to get the next term.

Exponential pattern – a sequence in which the same number is multiplied or divided by each term to get the next term. (When a pattern increases or decreases by some percentage an exponential change is happening)

Which of the above sequences are linear?

Which are exponential?

Guided practice

For each sequence below:

- Determine the next three terms
- Find a rule that allows you to get from one term to the next
- Label the sequence linear pattern, exponential pattern, or neither.

1) 1, 2, 4, 8, _____, _____, _____

Rule –

Type of Sequence –

2) 1, 4, 9, 16, _____, _____, _____

Rule –

Type of Sequence -

3) 5, 7, 9, 11, _____, _____, _____

Rule –

Type of Sequence –

4) 2, 3, 5, 8, _____, _____, _____

Rule –

Type of Sequence –

5) 100, 92, 84, 76, _____, _____, _____

Rule –

Type of Sequence -