## Unit 1 Lesson 5: Sequences are Functions

### 1 Bowling for Triangles (Part 1) (Warm up)

#### Student Task Statement

Describe how to produce one step of the pattern from the previous step.



### 2 Bowling for Triangles (Part 2)

#### Student Task Statement

Here is a visual pattern of dots. The number of dots is a function of the step number .



1. What values make sense for in this situation? What values don't make sense for ?
2. Complete the table for Steps 1 to 5.

|  |  |
| --- | --- |
|  |  |
| * 1 | * 1 |
| * 2 |  |
| * 3 |  |
| * 4 |  |
| * 5 |  |

1. Following the pattern in the table, write an equation for in terms of the previous step. Be prepared to explain your reasoning.

### 3 Let's Define Some Sequences

#### Student Task Statement

Use the first 5 terms of each sequence to state if the sequence is arithmetic, geometric, or neither. Next, define the sequence recursively using function notation.

1. : 30, 40, 50, 60, 70, . . .
2. : 80, 40, 20, 10, 5, 2.5, . . .
3. : 1, 2, 4, 8, 16, 32, . . .
4. : . . .
5. : 20, 13, 6, -1, -8, . . .
6. : 1, 3, 7, 15, 31, . . .



© CC BY 2019 by Illustrative Mathematics®