## Unit 1 Lesson 10: Situations and Sequence Types

### 1 Describing Growth (Warm up)

#### Student Task Statement

1. Here is a geometric sequence. What is the growth factor? 16, 24, 36, 54, 81
2. 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? Be prepared to explain your reasoning.

### 2 Finding Population Patterns

#### Student Task Statement

The table shows two animal populations growing over time.

| years since 1990 | Population  | Population  |
| --- | --- | --- |
| 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 |

1. Are the sequences represented by Population and Population arithmetic or geometric? Explain how you know.
2. Write an equation to define Population .
3. Write an equation to define Population .
4. Does Population ever overtake Population ? If so, when? Explain how you know.

### 3 Finding Square Patterns

#### Student Task Statement

Define the sequence so that is the number of white squares in Step , and define the sequence so that is the number of black squares in Step .



1. Are the sequences and arithmetic, geometric, or neither? Explain how you know.
2. Write an equation for sequence .
3. Write an equation for sequence .
4. Is the number of black squares ever larger than the number of white squares? Explain how you know.



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