**6.17 Identify and Extend Geometric and Arithmetic Sequences**

**Key Vocabulary:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- a list of numbers or objects in a specific order
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- a specific number or object in a sequence
* Arithmetic Sequence- a sequence that goes from one term to the next by always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the same value.
  + Example:
* Geometric Sequence- a sequence that goes from one term to the next by always ­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the same value.
  + Example:
* Triangular Numbers- a set of pictures where a new row of dots is added to each figure
  + Example:

**\*\*\*REMEMBER:**

When a sequence-

Increases—then look for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Decreases—then look for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Steps for Solving a Sequence**

16; 24; 32; 40…

* **Step 1:** Is the sequence increasing or decreasing? \_\_\_\_\_\_
* **Step 2:** By what number each time? \_\_\_\_\_\_
* **Step 3:** Fill in the missing number(s) in the pattern.

16; 24; 32; 40; 48; 56; 64

**Practice—Describe the pattern in the sequence and then tell the next 2 terms in the sequence**

1. 20; 16; 12; 8…

* **Step 1:** Is the sequence increasing or decreasing? \_\_\_\_\_\_
* **Step 2:** By what number each time? \_\_\_\_\_\_
* **Step 3:** Fill in the missing number(s) in the pattern.

20; 16; 12; 8 \_\_\_\_; \_\_\_\_\_

2. 5; 15; 45; 135…

* **Step 1:** Is the sequence increasing or decreasing? \_\_\_\_\_\_
* **Step 2:** By what number each time? \_\_\_\_\_\_
* **Step 3:** Fill in the missing number(s) in the pattern.

5; 15; 45; 135; \_\_\_\_\_; \_\_\_\_\_

3. 3,125; 625; 125; 25…

* **Step 1:** Is the sequence increasing or decreasing? \_\_\_\_\_\_
* **Step 2:** By what number each time? \_\_\_\_\_\_
* **Step 3:** Find the 6th number in this pattern.