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 **Objectives:**

* Find the midpoint between 2 points.
* Find the distance between 2 points.
* Identify an arithmetic sequence.
* Give the common difference of an arithmetic sequence.
* Find the nth term of an arithmetic sequence.
* Find arithmetic means between 2 terms of an arithmetic sequence.
* Identify a geometric sequence.
* Give the common ratio of a geometric sequence.
* Find the nth term of a geometric sequence.
* Find geometric means between 2 terms of a geometric sequence.
* Find the sum of the first n-terms of an arithmetic sequence
* Find the sum of the first n-terms of a geometric sequence.
* Find the sum of an infinite geometric sequence.

***MONDAY (4.14.25****)*

**Previous Class Work/Homework Check.** Please refer to page 4 in the Week of 4.7.25 Plan.

**Notes:**

To find the sum of the first n terms of a geometric sequence, Sn, use the formula
**Sn=a1(1−rn)**

 **1−r , r≠1,**
where n is the number of terms, a1 is the first term and r is the [common ratio](https://www.varsitytutors.com/hotmath/hotmath_help/topics/common-ratio).

The sum of the first n terms of a geometric sequence is called a **geometric series**.

To find the sum of an infinite geometric sequence, use **S = a1\_\_ .**

 **1 – r , where r is between, but not equal to, -1 and 1.**

**Class Work/Homework:**

* 1. Find the sum of the first 8 terms of the geometric series if a1=1 and r=2.
	2. Find the sum of the first 10 terms of the geometric sequence 24,12,6,⋯.
	3. Find the sum of the infinite geometric sequence
	27,18,12,8,⋯ if it exists.
	4. Find the sum of the infinite geometric sequence
	8,12,18,27,⋯ if it exists.

**Class Work/Homework:** Handout (Arithmetic Series)

***WEDNESDAY (4.16.25****)*

**Discuss the previously assigned problems** (Arithmetic Series).

**Class Work/Homework:** Handout (Geometric Series).

***FRIDAY (4.18.25****)*

**Discuss the previously assigned problems** (Geometric Series).

**Class Work/Homework:** Study for a quiz on arithmetic/geometric sequences and series to be taken on Monday, April 21.

***SATURDAY (4.19.25****)* **E-Learning Day.** **Your work is due by Thursday, April 24**.

**We are completing a unit on arithmetic/geometric sequences and series.**

To help you prepare for these types of questions, you have found your great uncle's old math book. In it you find the following question:

“Three numbers in an arithmetic sequence sum to six. If you add 1 to the first number, 2 to the second number, and 5 to the third number, the result will be a geometric sequence. What are the original three numbers? \_\_\_\_\_\_\_\_\_\_\_\_

There are two possible answers to this problem. What is a second answer? \_\_\_\_\_\_\_\_\_\_\_\_\_

Be sure to answer and explain both sets of answers on a separate sheet of paper.”