Warm Up

Evaluate the related series of each sequence.

6, 11, 16, 21, 26, 31, 36

$a_1 = 4,\ a_n = 22,\ n = 10$

Determine the number of terms n in each arithmetic series.

$a_1 = 19,\ a_n = 118,\ S_n = 822$

Infinite vs. Finite

The difference between a finite and infinite series is whether or not there is a "…" at the end.

Example,

- 3, 5, 7, 9….
- 6, 3, 1.5, .75

Convergent and Divergent Series

What will happen to the terms of this sequences as it continues forever?

$$8, 4, 2, 1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \ldots$$

It approaches 0!

Convergent Sequence

A sequence is converging if its terms approach 0.

*Only applies to geometric sequences.

Determine if the following sequences are **convergent** or **divergent:**

1) $27, 9, 3, 1, \frac{1}{3}, \frac{1}{9} \ldots$

2) $5, 15, 45, 135 \ldots$

3) $100, 10, 1, .1, .01, .001, \ldots$