January 14

SWBAT:
Summarize Series tests, including Properties of Geometric Series

Essential Learning Goals:

- Define a series as a sequence of partial sums
- Apply properties of Geometric Series
- Apply properties of P-series, including the Harmonic Series
- Relate Series to Improper Integrals
- Define Functions using Power Series
- Find the Interval and Radius of Convergence for a Power Series
- Write Taylor Series Expansions
- Manipulate Taylor Series

if $\lim_{n\to\infty} a_n \neq 0$, then $\sum_{n=1}^{\infty} a_n$ diverges

(limit of the terms → (series) in a sequence ≠ 0)

n^{th} term test for divergence

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$$\sum_{n=1}^{\infty} ar^{n-1}$$

converges if $|r|<1$

diverges if $|r|\geq 1$

Converges to $\frac{a}{1-r}$

(sum of the series)

Geometric Series