

Vector Calculus Independent Study

Unit 9: Infinite Series

In this section, you will learn:

- What an infinite sequence is, and how to take its limit.
- The definition of an infinite series, and what it means for it to converge or diverge.
- How to calculate the value of a geometric series.
- The definition of a p-harmonic series.
- The limit test for the divergence of an infinite series.
- The comparison test.
- The integral test.
- The ratio test.
- The root test.
- The alternating series test.
- What a power series is, and how to find its radius and interval of convergence.
- How to add, subtract, differentiate, and integrate power series, and how to multiply one by a polynomial.
- How to find a power series approximation to a function near a point (Taylor series).

Suggested Procedure:

1. Read and do some problems from
 - Rogers Chapters 27 and 28, or
 - Simmons Chapters 13 and 14.
2. Take the sample test.
3. Take a unit test.