# 42 Lecture - MTH101

# **Important Subjective**

#### What is an infinite series?

An infinite series is a sum of an infinite number of terms. It is represented as a1 + a2 + a3 + ... where a1, a2, a3, ... are the terms of the series.

#### What is the difference between a sequence and a series?

A sequence is a list of numbers in a specific order, while a series is the sum of these numbers.

#### What is a convergent series?

A convergent series is a series whose sum approaches a finite value as the number of terms increases.

#### What is a divergent series?

A divergent series is a series whose sum approaches infinity or negative infinity as the number of terms increases.

#### What is the nth term test for divergence?

The nth term test for divergence is a test used to determine if a series converges or diverges by checking if the limit of the nth term as n approaches infinity is zero or not.

#### What is the comparison test for convergence?

The comparison test for convergence is a test used to determine if a series converges or diverges by comparing it to a series that is known to converge or diverge.

#### What is the ratio test for convergence?

The ratio test for convergence is a test used to determine if a series converges or diverges by checking the limit of the ratio of successive terms as n approaches infinity.

# What is the integral test for convergence?

The integral test for convergence is a test used to determine if a series converges or diverges by comparing it to the integral of a related function.

# What is the alternating series test for convergence?

The alternating series test for convergence is a test used to determine if an alternating series converges or diverges by checking if the absolute value of the terms decreases and approaches zero.

# What is the limit comparison test for convergence?

The limit comparison test for convergence is a test used to determine if a series converges or diverges by comparing it to a series whose limit as n approaches infinity is known.