# 41 Lecture - MTH101

## **Important Subjective**

#### What is a sequence?

A sequence is a list of numbers arranged in a specific order that follows a pattern or rule.

#### How can a sequence be defined?

A sequence can be defined through a formula or a recursive formula.

#### What is the difference between a bounded and an unbounded sequence?

A bounded sequence is limited between two specific values, while an unbounded sequence has no limit.

#### What is the Fibonacci sequence?

The Fibonacci sequence is a famous sequence defined recursively by the formulas  $f_1 = 1$ ,  $f_2 = 1$ , and  $f_n = f_{n-1} + f_{n-2}$  for n ? 3.

#### What is the squeeze theorem?

The squeeze theorem is a technique used to approximate the value of a limit of a function using a sequence that converges to the limit.

#### What is a series?

A series is the sum of the terms of a sequence, which can be either finite or infinite.

#### What is the difference between a convergent and a divergent series?

A series is convergent if the sum of the terms approaches a finite limit as the number of terms increases to infinity, while a series is divergent if the sum of the terms does not approach a finite limit.

#### What are some tests for determining whether a series is convergent or divergent?

Some tests for determining whether a series is convergent or divergent include the comparison test, the ratio test, and the integral test.

## How can sequences be used in calculus?

Sequences can be used to approximate the value of a limit of a function and to determine the convergence or divergence of a series.

## Can a sequence be defined in other ways besides a formula or a recursive formula?

Yes, a sequence can also be defined using a table or a graph of its values.