

# Recurrence Relations

## Key Concepts:

- Recurrence relations
- Sequences
- Series

## Important Definitions:

- Recurrence relation: A mathematical equation that defines a sequence of numbers recursively
- Sequence: A list of numbers in a specific order

## Examples:

- Problem 4: Solve the recurrence relation  $\sum_{k=1}^n a(k) = n / (n+1)$
- Problem 5: Find the value of the sequence  $a_n = 1 / (4n+1) + 1 / (4n+3) - 1 / (2n+2)$

## Solving Recurrence Relations

- Using iteration
- Using characteristic equations
- Using generating functions

## Applications of Recurrence Relations

- Modeling population growth
- Modeling financial systems
- Modeling physical systems

## Summary:

This topic introduces the concept of recurrence relations and their applications in solving sequences and series.