Calculus Study Notes

# Chapter 1: Limits

A limit is the value that a function approaches as the input approaches some value. Limits are essential to calculus and are used to define continuity, derivatives, and integrals.

## Key Concepts

* One-sided limits: approaching from left or right
* Two-sided limits: both sides approach same value
* Infinite limits: function grows without bound

## Example Problem

Find the limit of f(x) = (x² - 1)/(x - 1) as x approaches 1.  
Solution: Factor the numerator to get (x+1)(x-1)/(x-1), cancel (x-1), and evaluate at x=1 to get 2.