

Chapter 1

Introduction

1.1 What is analysis?

- 6/14:
- **Analysis:** “The rigorous study of [mathematical] objects, with a focus on trying to pin down precisely and accurately the qualitative and quantitative behavior of those objects” (1).
 - **Real analysis:** “The analysis of the real numbers, sequences and series of real numbers, and real-valued functions” (1).
 - Real analysis is the theoretical foundation for **calculus**.
 - **Calculus:** “The collection of computational algorithms which one uses to manipulate functions” (1).
 - Lists questions that can be answered with real analysis (motivation for studying it).

1.2 Why do analysis?

- Lists examples of contradictions in naïve calculus that must be resolved (and can be resolved with real analysis).