Section 1: Limits, Continuity, Sequences, Series

**Limits**
- You can define right and left limits.
- It also works for $x$ approaching infinity.

**Continuity**
- Attention for functions that are not defined for the whole set of real numbers.

**Differentiability**
- Rules/theorems/tricks
- Limit laws (1-5 also valid for $x$ approaching infinity)
- Sandwich theorem
- L'Hôpital

**Sequences and series**
- Definitions
- Series
- Geometric series
- Harmonic p series

**Properties of series**
- Convergence and divergence tests for series
  - Ratio test
  - Divergence test via the limit of the associated sequence
  - Comparison test for positive term series

**Definitions**
- Limits and continuity
- Formal definition of limits
- Continuity
- Functions that are not defined for the whole set of real numbers.

**Rules/theorems/tricks**
- Limit laws (1-5 also valid for $x$ approaching infinity)
- Sandwich theorem
- L'Hôpital

**Connections limits of real valued functions and limits of sequences**
- The sandwich theorem also works for sequences

**Composition of sequences**
- Standard limits for sequences
- Helping you identify sequences hierarchy

**List of some continuous functions**
- Composition of continuous functions are continuous in their domains
- Be careful with the domain.

**Differentiability and continuity of a function**
- Sandwich theorem
- L'Hôpital