Unit 2: Limits

Vocabulary and notation

\[ \lim_{x \to a} f(x) \quad \lim_{x \to a^+} f(x) \quad \lim_{x \to a^-} f(x) \quad \lim_{x \to \infty} f(x) \]
\[ \lim_{x \to -\infty} f(x) \quad \text{continuous} \quad \text{continuous on an open interval} \quad \text{continuous on a closed interval} \]
\[ \text{horizontal asymptote} \quad \text{limit of a sequence} \]

Skills

- Formal definition of a limit: know it and be able to use it in simple cases
- Recognition of limits from graphs
- Limits at infinity: definition
- One-sided limits: definition
- Limits of \( \pm \infty \), as a subclass of UNDEFINED limits
- Definition of continuity

Know when these results apply and how to use them:

- Intermediate value theorem
- Theorems for computing limits: sums/differences, products/quotients, composition with continuous functions
- Conjugate radical trick
- Sandwiching theorem