Real Analysis II: Sequences and Series of Functions

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1 Introduction

- Let $\{f_n\}$, $n \in \mathbb{N}$, be a sequence of functions defined on a set E, and suppose that the sequence of numbers $\{f_n(x)\}$ converges for every $x \in E$. Then, we can define a function $f(x) = \lim_{n\to\infty} f_n(x)$ for $x \in E$. In this case we say that $\{f_n\}$ converges on E, that f is the limit function of $\{f_n\}$, or that $\{f_n\}$ converges to f pointwise on E.
- Similarly,