

Let f be a real-valued function defined on a subset D of \mathbb{R} and let a be a limit point of D . Let L be a real number. Prove that

$\lim_{x \rightarrow a} f(x) = L$ (according to the sequential definition given in Sect. 3.7 of the textbook)

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for every number $\varepsilon > 0$, there exists a number $\delta > 0$ such that

for every $x \in D$ with $0 < |x - a| < \delta$, we have $|f(x) - L| < \varepsilon$.