

Definition of the Limit of a Sequence

Let L be a real number. The *limit* of a sequence (a_n) is L , written

$$\lim_{n \rightarrow \infty} a_n = L$$

if for each $\varepsilon > 0$, there exists $M > 0$ such that $|a_n - L| < \varepsilon$ whenever $n > M$. If the limit L of a sequence exists, then the sequence **converges** to L . If the limit of a sequence does not exist, then the sequence **diverges**.