limit of a function

limit of a function

Let $f(x)$ be a function defined on some open interval that contains a, except possibly at a itself. We say that the limit of $f(x)$ as x approaches a is L, and we write:

$$\lim_{x \to a} f(x) = L$$

if, for every number $\epsilon > 0$ there exists a number $\delta > 0$ such that whenever $0 < |x - a| < \delta$, it follows that $|f(x) - L| < \epsilon$.

- ϵ: this represents how close we want $f(x)$ to be to L. We can choose ϵ to be any small positive number, indicating the "closeness" level we desire
- δ: this represents how close x needs to be to a in order for $f(x)$ to be within ϵ of L

limit of a function