$y = f(x)$

our first L

L?

$f(x)$

x a

Conclusion:
this L is not the limit of $f(x)$ as $x \to a$.

The definition of "$\lim_{x\to a} f(x) = L$":
For every $\varepsilon > 0$ there is a $\delta > 0$ such that
for all $x \neq a$ with $a - \delta < x < a + \delta$ one has
$L - \varepsilon < f(x) < L + \varepsilon$