

1 | The Limit Notation

1.1 | Single-Sided Limits

["What is y approaching when x approaches a from the right (+)?"]Right Single-Sided Limit $\{\lim_{x \rightarrow a^+} f(x)\}$
 ["What is y approaching when x approaches a from the left (−)?"]Left Single-Sided Limit $\{\lim_{x \rightarrow a^-} f(x)\}$
Watch! If both the left and right single-sided limit exists and is the same, the Double-Sided Limit exists.

1.2 | Double-sided Limits

["What is y approaching when x approaches a ?" This exists only if $\lim_{x \rightarrow a^-} f(x) = \lim_{x \rightarrow a^+} f(x)$]{Left Single-Sided Limit}{ $\lim_{x \rightarrow a} f(x)$ } **Vocab!** When the Double-Sided Limit does not exist, it is called *DOES NOT EXIST!*. It is not! *undefined*