좌극한, 우극한
(Definiton of One-Sided Limits)

Definiton of One-Sided Limits

Start End

Definiton of One-Sided Limits

Start End

Start End

- lim

Start End

- $\lim_{x}$

Start End

- $\lim\limits_{x \to}$

Start End

- $\lim_{x \to a}$

Start End

- $\lim_{x \to a} f(x)$

Start End

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

Start End

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

Start End

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

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0,$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta$

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- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$

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- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t.

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- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta$

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- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta \Rightarrow$

▸ Start ▸ End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

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- $\lim_{x}$

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  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to}$

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- $\lim_{x \to a^-}$

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- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^-} f(x)$

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

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- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon$

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- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists$

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- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } a - \delta < x < a$

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- $\lim_{x \to a^+}$

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- $\lim_{x \to a^+} f(x)$

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- $\lim_{x \to a^+} f(x) = L$
  $\forall$

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- $\lim_{x \to a^-} f(x) = L$
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- $\lim_{x \to a^+} f(x) = L$
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- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta$

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- $\lim_{x \to}$

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  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a} f(x)$

Start End

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

Start End

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- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

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

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- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

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

Start End

- $\lim_{x\to a} f(x) = L$
  $\forall\epsilon > 0, \exists\delta > 0 \text{ s.t. } 0 < |x-a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x\to a^-} f(x) = L$
  $\forall\epsilon > 0, \exists\delta > 0 \text{ s.t. } a-\delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x\to a^+} f(x) = L$
  $\forall\epsilon > 0, \exists\delta > 0 \text{ s.t. } a < x < a+\delta \Rightarrow |f(x) - L| < \epsilon$

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

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

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  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

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

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

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  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

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

Start End

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  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$
- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$
- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$
- $\lim_{x \to a} f(x) = L \Leftrightarrow \lim_{x \to a^-} f(x) = L$ and

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a} f(x) = L \Leftrightarrow \lim_{x \to a^-} f(x) = L$ and $\lim$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a} f(x) = L \Leftrightarrow \lim_{x \to a^-} f(x) = L$ and $\lim_{x}$

Start End

- $\lim_{x\to a} f(x) = L$
  $\forall\epsilon > 0, \exists\delta > 0$ s.t. $0 < |x-a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x\to a^-} f(x) = L$
  $\forall\epsilon > 0, \exists\delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x\to a^+} f(x) = L$
  $\forall\epsilon > 0, \exists\delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x\to a} f(x) = L \Leftrightarrow \lim_{x\to a^-} f(x) = L$ and $\lim_{x\to}$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } 0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0 \text{ s.t. } a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a} f(x) = L \Leftrightarrow \lim_{x \to a^-} f(x) = L$ and $\lim_{x \to a^+}$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a} f(x) = L \Leftrightarrow \lim_{x \to a^-} f(x) = L$ and $\lim_{x \to a^+} f(x)$

Start End

- $\lim_{x \to a} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $0 < |x - a| < \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^-} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a - \delta < x < a \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a^+} f(x) = L$
  $\forall \epsilon > 0, \exists \delta > 0$ s.t. $a < x < a + \delta \Rightarrow |f(x) - L| < \epsilon$

- $\lim_{x \to a} f(x) = L \Leftrightarrow \lim_{x \to a^-} f(x) = L$ and $\lim_{x \to a^+} f(x) = L$

Github:
https://min7014.github.io/math20240109001.html

Click or paste URL into the URL search bar, and you can see a picture moving.