$$[\forall \epsilon < 0, a + \epsilon < 0] \Leftrightarrow a \geq 0$$

$[\forall \epsilon < 0, a + \epsilon < 0] \Leftrightarrow a \geq 0$

▸ Start ▸ End

Start End

Theorem

Start End

Theorem

$[\forall$

Start End

Theorem

$[\forall \epsilon$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

Start End

Theorem

$[\forall\epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon$

$[\forall\epsilon < 0, a + \epsilon < 0] \Leftrightarrow a \geq 0$

▸ Start ▸ End

Theorem

$[\forall\epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists\epsilon > 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0$ s.t.

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let ϵ

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a)$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

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$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

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$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

a

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

$a \geq 0$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

$a \geq 0$, ϵ

Start End

Theorem

$[\forall\epsilon > 0, a+\epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists\epsilon > 0 \text{ s.t. } a+\epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a+\epsilon = a+(-a) = 0 \leq 0$

$(\Leftarrow)$

$a \geq 0$, $\epsilon > 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

$a \geq 0$, $\epsilon > 0$, $a + \epsilon$

$[\forall \epsilon < 0, a + \epsilon < 0] \Leftrightarrow a \geq 0$

Start End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

$a \geq 0$, $\epsilon > 0$, $a + \epsilon > 0$

▸ Start ▸ End

Theorem

$[\forall \epsilon > 0, a + \epsilon > 0] \Leftrightarrow a \geq 0$

Proof.

$(\Rightarrow)$

$a < 0 \Rightarrow [\exists \epsilon > 0 \text{ s.t. } a + \epsilon \leq 0]$

$a < 0$, Let $\epsilon = -a$, $a + \epsilon = a + (-a) = 0 \leq 0$

$(\Leftarrow)$

$a \geq 0$, $\epsilon > 0$, $a + \epsilon > 0$ □

Github:
https://min7014.github.io/math20240106001.html

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