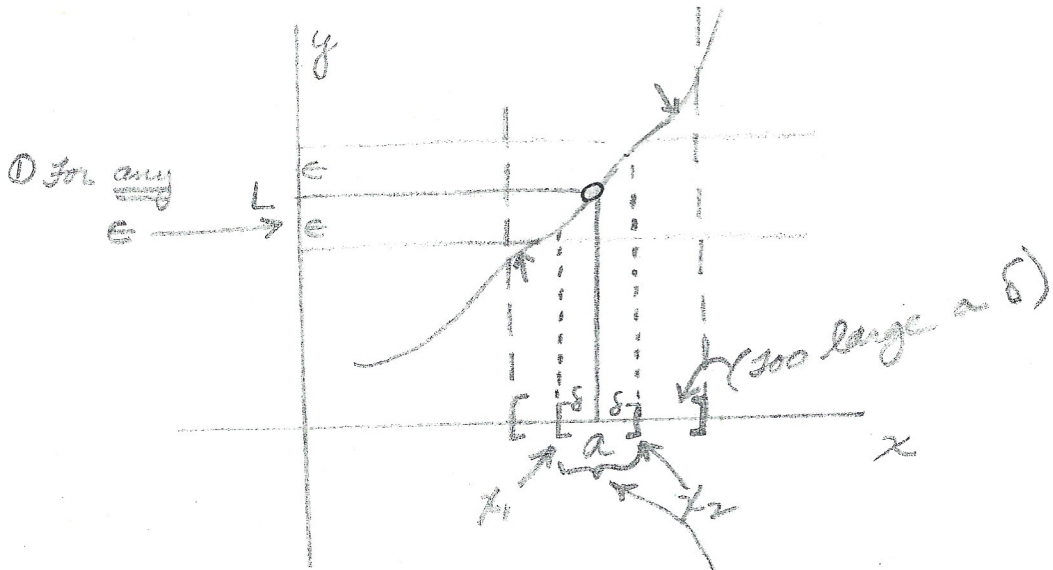


DELTA - EPSILONICS

(FORMAL DEFINITION FOR $\lim_{x \rightarrow a} f(x) = L$)

Given any $\epsilon > 0$, there exists some $\delta > 0$ such that whenever $0 < |x - a| < \delta$, $|f(x) - L| < \epsilon$.



- ② we can find some value δ (too large a value of δ may not work, but a smaller one will.)
- ③ such that for any x here,
($x \neq a$)
- ④ $f(x)$ is between the horizontal lines.

$$L - \epsilon \leq f(x) \leq L + \epsilon$$

$$a - \delta \leq x \leq a + \delta$$

Increasing functions	All functions
$f(x_1) = L - \epsilon$	$x_1 = a - \delta_1$
$f(x_2) = L + \epsilon$	$x_2 = a + \delta_2$
Decreasing functions	
$f(x_1) = L + \epsilon$	$f(x_2) = L - \epsilon$