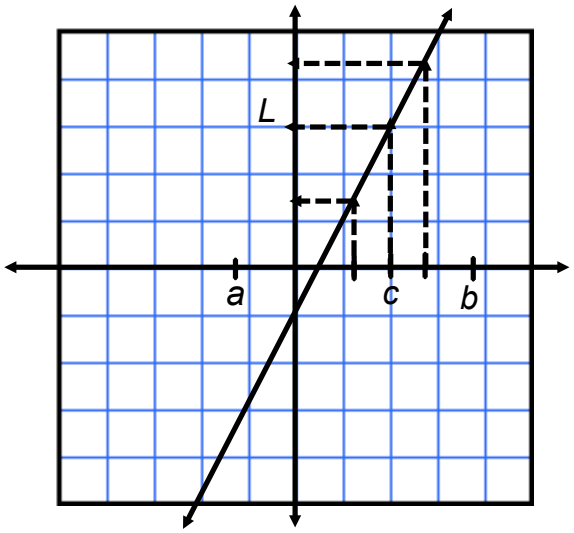
Formal Definition of a Limit -

Let f be a function defined on an open interval (a,b) such that c ε (a,b) and $f(x)$ exists at all points except perhaps at c. Let L be a real number.

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

means that



Find the Limit L and prove its existence.

$\lim_{x \to -3} (x + 2) =$

box work $|f(x) - L| < \varepsilon$

Given: $0 < |x - a| < \delta$

Let $\delta =$

$0 < |x - \_\_| < \delta$

$\Rightarrow$

$\Rightarrow$

$\Rightarrow$

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Find the Limit L and prove its existence.

$\lim_{x \to 4} (5 - 2x) =$

box work $|f(x) - L| < \varepsilon$

Given: $0 < |x - a| < \delta$

Let $\delta =$

$0 < |x - \_\_| < \delta$

$\Rightarrow$

$\Rightarrow$

$\Rightarrow$

$\Rightarrow$

$\Rightarrow$

$\Rightarrow$

$\Rightarrow$

Find the constraints on δ if $\varepsilon < 0.01$.

Find the Limit L and prove its existence.

$\lim_{x \to 2} (x^2 - 3) =$

box work $|f(x) - L| < \varepsilon$

Given: $0 < |x - a| < \delta$

Let $\delta =$

$0 < |x - \_\_| < \delta$

Assignment:
Handout, pg 101
(Stewart book)
15-32 all