Quiz 1

Oct 02 2003, 10:10 AM - 11:40 AM

Show all details.

(1) (15+15 pts) Write down the definition of

$$\lim_{x \to 1} 2x = 2$$

in terms of ϵ and δ (need not prove it). Then find a δ that works for $\epsilon = 0.01$ (need not be the best δ).

(2) (15+15 pts) State (need not prove) the Intermediate Value Theorem. Use it to locate a root of $x = \cos x$ on a interval of length 1. That is, find a c such that there is a root on $(c, c+1)$.

(3) (15 pts) State (need not prove) the product rule and the quotient rule for derivatives.

(4) (15 pts) State (need not prove) the Sandwich Theorem.

(5) (10 pts) Find $\frac{d}{dx}\sqrt{x}$ for $x > 0$ directly from definition (but need not use ϵ, δ).

Calculus, Fall 2003

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