

Final Topics

Calculus II - MAT 132

August 12, 2008

1. Pre-Calculus

- (a) Definitions of functions, domain, range, even, odd, ...
- (b) Sums, differences, products and quotients of functions
- (c) Composing functions
- (d) Inverse functions
- (e) Exponential and Logarithmic functions
- (f) Trigonometric and Inverse-trigonometric functions

2. Limits and Derivatives

- (a) Definition of limits
- (b) Properties of limits (sums, products, quotients)
- (c) Squeeze Theorem
- (d) Definition of continuous function
- (e) Properties of continuous functions
- (f) Limits involving infinity (horizontal and vertical asymptotes)
- (g) Definition of the derivative of a function
- (h) Computing the derivative from the definition

3. Differentiation Rules

- (a) Derivatives of polynomials, exponentials, logarithms, trigonometric functions
- (b) The product and quotient rules
- (c) The chain rule
- (d) Implicit differentiation
- (e) Linear approximations

4. Applications of Derivatives

- (a) Maxima and minima of functions
- (b) Concavity of functions
- (c) Sketching graphs
- (d) L'Hôpital's rule
- (e) Optimization problems
- (f) Newton's Method