Test 3 Topics

Calculus Theory

May 12, 2011

1 Chapter 11

1. Know how to use the first and second dervative to find local extrema (critical points), where a function is increasing and decreasing, and determine concavity and inflection points. Combine these with other techniques (for example finding asymptotes) to sketch curves. See problems 2 and 3.

2. Know how to find absolute extreme for a function and apply this technique to optimization problems. See problems 1 and 7–18.

3. Be able to solve simple rectilinear motion problems. See problems 32–33.

4. Know l'Hôpital's Rule, when to use it, and be able to use it. See problems 51, 52 and the Anton handout.

5. Know the statement of the mean value theorem, its two corollaries, and how to apply them.

2 Chapter 12

1. Know the definition of a function and the inverse of a function. Know what 1-1 means. Be able to compute the domain and range of a function and its inverse. Know when an inverse function is continuous and differentiable, and be able to calculate the derivative. See problems 1, 6 and 7.

2. Know implicit differentiation (how to calculate the derivative of a function defined implicity). See problems 15–18.