

## 240 - Calculus III: Test 3 Study Guide

Henson - Fall 09

### TEST 3 TOPICS:

\* You may bring to the test one  $3 \times 5$  notecard front and back!

\*\*Make sure to know all derivative rules and integration techniques from Calc I and II.

1. Evaluate limits of multivariate functions.
2. Show that a limit does not exist at a point.
3. Compute partial derivatives.
4. Compute directional derivatives.
5. Find a plane tangent to a surface at a point.
6. Find a line normal to a surface at a point.
7. Properties of gradients.
8. Compute the gradient of a function.
9. Chain Rule: 2 cases.
10. Find the relative extrema of a multivariate function.
11. Use differentials to approximate the change in elevation from one point to another.
12. Lagrange multipliers.

\* Skip 13.9 - Applications of Extrema