Lecture 9: Chain rule

Math 195 Section 91

Friday July 10, 2009

Section 15.5 and section 15.6

1 Chain rule

first example: differentiate $f(g(t), h(t))$.
slightly more complicated example: $f(g(t, s), h(t, s))$.
maximally complicated example

2 Directional derivative

definition
relate to partial derivative

3 Gradient vector

definition
relate gradient to directional derivative
interpretation: normal to level curve, steepest ascent

4 Next time

optimization: finding the max, finding the min.