Math 53 - Multivariable Calculus

Quiz # 7

March 9th, 2012

Exercise 1. *Suppose* $(1,1)$ *is a critical point of a function* f *with continuous second derivatives. What can you say about* f *given that* $f_{xx}(1,1) = -4$, $f_{yy}(1,1) = 1$, *and* $f_{xy}(1,1) = -5$.

Exercise 2. *Find and classify ALL the critical points of* $f(x,y) = e^x \cos(y)$.

Exercise 3. *Evaluate* $\int_0^1 \int_{3y}^3 e^{x^2} dxdy$.