Math 128
Quiz 1 – September 11, 2008

Name _____

1. Consider the function $f(x, y) = 2x^2 + y^3 - x - 12y + 4$.

   (a) Find the partial derivatives $f_x = \dfrac{\partial f}{\partial x}$ and $f_y = \dfrac{\partial f}{\partial y}$.

   (b) Find all critical points of f.

   (c) Calculate the 2nd derivatives $f_{xx} = \dfrac{\partial^2 f}{\partial x^2}$, $f_{yy} = \dfrac{\partial^2 f}{\partial y^2}$, and $f_{xy} = \dfrac{\partial^2 f}{\partial y \partial x}$.

   (d) Use the discriminant to determine which critical points are relative maxes, relative mins, and saddle points.