Name:..Serial#:.........................Sec #......................................

Q.1: Find and sketch the domain of the function $f(x, y) = \sqrt{-x^2 - y^2 + 16} + \ln\left(x^2 + y^2 - 4\right)$.

Q.2: Show that the limit $\displaystyle\lim_{(x,y)\to(0,0)} \frac{6xy}{2x^2 + 3y^2}$ does not exist.

Q.3: Find all the second order partial derivatives of $f(x, y) = \ln\left(-2x + 3y\right)$.