Math 201-151 Quiz 5 (A)

Name:.....ID#:.....Sec:.....Ser:.....

Q.1: Find local maxima, local minima, and saddle point of the function

$$f(x, y) = x^3 + 3xy^2 + y^3 - 15x - 15y$$

Q.2: Find linearization of the function $f(x, y) = \frac{1}{2}x^2 + xy + \frac{1}{4}y^2 + 3x - 3y + 4$ at $P_0(2, 2)$. Then find an upper bound for magnitude of the error in the approximation $f(x, y) \approx L(x, y)$ over the rectangle R: $|x - 2| \leq 0.1, \quad |y - 2| \leq 0.1$