Quiz 2   **Calculus 3**   **10/5/2012**

Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Evaluate $\displaystyle\lim_{(x,y)\to(0,0)} \frac{xy}{x^2 + y^2}$.

2. Find an equation for the plan tangent to $z = \dfrac{1}{3 + xy^2}$ at the point $(3,-2,1/15)$.

3. Find and classify all critical points of $V(x, y) = xy(24 - x - y)$.

4. Find and classify all critical points of $f(x, y) = e^y(y^2 - x^2)$.