Name: SOLUTIONS

Quiz #4 - October 2, 2008

1. Find the limit if it exists. If it does not exist, write DNE. Show your work.

$$\lim_{(x,y)\to(0,0)} \frac{xy^8}{x^3+y^{12}}.$$

Along the curve $y = 0$ the function is identically zero. Along the curve $x = y^4$ the function is $\frac{y^{12}}{2y^{12}}$ which is $1/2$ away from the origin. Since the limit approaching $(0, 0)$ along these two curves is different, then the limit DNE.

2. Let $f(x, y) = x\sin(y^2)$. Find the partial derivatives f_x and f_y.

$$f_x = \sin(y^2)$$

$$f_y = 2xy\cos(y^2)$$