Name:
September 29, 2016
MAC 2313.6717
Cyr

Quiz 5
You must show all work to receive full credit!!

Problem 1. (4 points) Given $f(x, y, z) = xy^2 e^{-xz}$, find the partial derivatives f_x, f_y, and f_z.

Problem 2. (a) (1 point) Evaluate $\displaystyle\lim_{(x,y,z)\to(0,0,0)} \frac{xy + yz}{x^2 + y^2 + z^2}$ along the x-axis.

(b) (2 points) Evaluate $\displaystyle\lim_{(x,y,z)\to(0,0,0)} \frac{xy + yz}{x^2 + y^2 + z^2}$ along the line $x = y = z$.

(c) (1 point) What can you conclude about $\displaystyle\lim_{(x,y,z)\to(0,0,0)} \frac{xy + yz}{x^2 + y^2 + z^2}$?

Problem 3. (2 points) True or false: $f_x(a, b)$ represents the slope of the tangent line to the curve $z = f(x, b)$ at the point $x = a$.