

KFUPM – Calculus III – Quiz 4 – Fall 2011

ID Number:

SECTION:

(3 pts.) **Problem 1:** Is the following function continuous at the origin? Justify your answer.

$$f(x, y) = \begin{cases} \frac{xy^2}{x^2+y^4} & \text{for } (x, y) \neq (0, 0) \\ 0 & \text{for } (x, y) = (0, 0) \end{cases}$$

(3 pts.) **Problem 2:** Find an equation for the tangent plane of the function $f(x, y) = xy \ln(x - y)$ at the point $(e, 0, 0)$.

(4 pts.) **Problem 3:** Use linear approximation of the function $f(x, y) = x^y$ at $(2, 2)$ to get an approximate value of $2.01^{1.98}$.