

Math 2210 - Exam 2

University of Utah

Fall 2008

Name: _____

1. (10 points) *Partial Derivatives*

Calculate the partial derivatives, $f_x(x, y)$ and $f_y(x, y)$, of the following functions:

(a) (3 points)

$$f(x, y) = e^x \cos(y)$$

(b) (3 points)

$$f(x, y) = y \cos(x^2 + y^2)$$

(c) (4 points)

$$f(x, y) = e^{x^2 - y^2}$$

2. (10 points) *Limits*

Determine each of the following limits, or state it does not exist and give an explanation as to why:

(a) (3 points)

$$\lim_{(x,y) \rightarrow (-2,1)} (xy^3 - xy + 3y^2)$$

(b) (3 points)

$$\lim_{(x,y) \rightarrow (0,0)} \frac{xy}{\sqrt{x^2 + y^2}}$$