

Quiz # 4– Math 2163, Calculus III – Sept. 14, 2007

Show all your work neatly and concisely, and indicate your final answer clearly.

1. Given $f(x, y) = \ln(3x + 5y)$, find all the first and second order partial derivatives.

Solution:

$$f_x = \frac{3}{3x + 5y},$$

$$f_y = \frac{5}{3x + 5y},$$

$$f_{xx} = \frac{-9}{(3x + 5y)^2},$$

$$f_{yy} = \frac{-25}{(3x + 5y)^2},$$

$$f_{xy} = f_{yx} = \frac{-15}{(3x + 5y)^2},$$