

Math 210, Groves, Quiz 5  
Thursday, October 6, 2011, 12pm.

Name: \_\_\_\_\_

Please write clearly and show all of your work.

1. Suppose that  $f(x, y) = x^2y - 3yx + 5y^3$ . Find all first and second partial derivatives of  $f$ .
2. Suppose that  $z = x^3y + \sin(x + y) - 3\cos(xy)$ , that  $x = t^2 - s$  and that  $y = 2st$ . Use the Chain Rule to find  $\frac{\partial z}{\partial t}$ .