

Math 142 Fall '10 Homework for 8.2 and 8.3

For each function:

- a) Find the first partial derivatives and the critical points.
- b) Find the 2nd partial derivatives and $D(x,y)$ but you do not need to simplify $D(x,y)$.
- c) Give the conclusion, if any, of the 2nd derivative test for each critical point.

1. $f(x, y) = e^{-xy}$

2. $f(x, y) = 4x^3 + 2y^2 - 12xy$

3. $f(x, y) = 3y - y^3 - 3x^2y$

4. $f(x, y) = 6xy^2 - 2x^3 - 3y^4$