

Math 1314 – ONLINE
Alternate Assignment 14

Record your answers to these questions on the Alternate Assignment 14 answer sheet and upload your answers to the Alternate 14 slot on the “Assignments” tab at casa.uh.edu. This assignment is due on Saturday, April 27, 2013, at 11:59 p.m. All work must be submitted electronically. Late work will not be accepted.

1. Suppose $f(x, y) = 2x - 7x^2y^3 + 5y^2 + x^2 + 2$. Find f_y .
2. Suppose $f(x, y) = 2x - 7x^2y^3 + 5y^2 + x^2 + 2$. Find $f_x \Big|_{(-1,3)}$.
3. Suppose $f(x, y) = 2x - 7x^2y^3 + 5y^2 + x^2 + 2$. Find $f_{yy} \Big|_{(-2,1)}$.
4. What is true of the powers of the exponents in a Cobb-Douglas production function?
5. Suppose $f(x, y) = 75x^{0.2}y^{0.8}$. Find the marginal productivity of capital. Make sure you include units in your answer.

For problems 6 – 11, use the function $f(x, y) = 2x^2 - xy + 3y^2 - 4x - 8y + 10$.

6. Find the first partial derivatives.
7. Find any critical points.
8. Find the second order partial derivatives.
9. For each critical point, find D.
10. For each critical point, determine if the function has a relative maximum, a relative minimum, a saddle point or none of these.
11. Find any relative extrema.
12. Suppose $f_{xx} = 12x$, $f_{yy} = 4$, $f_{xy} = f_{yx} = 6$ and f has a critical point at $(-2, 4)$. Find D and explain the results.