Math 366, Winter '03
Homework 2

From Rudin. pp 239: 6, 7, 8

Profs Personal Problems:

1. Let $f : \mathbf{R}^2 \to \mathbf{R}^3$ be given by $f(x, y) = (x^2 y, \sin(x - 2y - 1), e^y/x)$. Compute

- $f'(1, 0)$.
- The linear approximation of f about $(x, y) = (1, 0)$.

2. Let $f : \mathbf{R}^2 \to \mathbf{R}^2$ be given by $f(x, y) = (x^2 - 2y, y - x^3 - 1)$. Let $f_1 = f$, $f_2 = f \circ f$, $f_3 = f \circ f \circ f$, etc. Compute $f_8'(-1, 1)$. (*Hint: you really don't want to actually figure out a formula for* f_8. *Trust me.*)