Homework 5, due Friday 2/18

1. p. 191, problems 2, 8 (a), 9.
2. Let $f(x, y, z) = x + y^2 + z^3 + xy$.
   (a) Find the first order Taylor polynomial at the point $(0, 0, 0)$.
   (b) Find the second order Taylor polynomial at the point $(0, 0, 0)$.
   (c) *Guess* the second order Taylor polynomial of $f(x, y, z) = x^3 + 2y + z^3 + yz$ at the point $(0, 0, 0)$.
3. Let $f(x, y) = xe^{x+y-1}$.
   (a) Find the first order Taylor polynomial at the point $(1, 0)$. Use this to give an estimate for $f(1.1, 0.1)$ without using a calculator.
   (b) Find the second order Taylor polynomial at the point $(1, 0)$. Use this to give an estimate for $f(1.1, 0.1)$ without using a calculator.
   (c) Calculate $f(1.1, 0.1)$ with a calculator, compare with the previous estimates.
4. p. 202, problems 1, 2
5. Let $f(x, y, z) = x^2yz + yz^3$. Find the second order Taylor polynomial at the point $(1, 2, 3)$.

The first midterm will be a self–scheduled two hour exam. The exam will cover all the material till section 3.2.

Beginning with this week there's an extra help session Tuesday 7–9 pm in Herman Brown 426.