Math 16B Homework 4

To be submitted in discussion section in week 6

Important Information:

- Page and problem numbers refer to the 2nd custom UC Berkeley edition. If you do not have this versions of the textbook you should check with someone else two make sure you're doing the correct problems
- In general, homework assignments for this class can be lengthy, but a lot of practice solving problems is essential for learning the material. Be organised, and dont leave things for a marathon session on night before submission.. Instead, get a good start on the homework over the weekend. As a rough guideline expect to spent anywhere between 5 and 10 hours a week on a problem set. Generally the final questions in a section are the most challenging.
- Discussing problems with your classmates is permitted and is a good way to make it more fun and gain a deeper understanding. However you should **always** begin each problem alone. I can't emphasise this point enough. If you've attacked a question from multiple directions over at least an hour and are completely stuck, that's the time to discuss it with your peers, not before. If solving a problem is like building a house, the initial time working alone is like laying the foundations. If you don't do it, then even if you end up with a solution after talking to other people, everything is at risk of collapse because it doesn't have a solid base. I've seen students work in big groups the moment they start a homework assignment and it tends to dramatically dilute individual understanding. Remember, you don't sit exams as a group, you sit them on your own. That said by all means talk to each other, just do it after you've spent some serious time on your own. And remember when you hand in proper homework, you must **write all the solutions yourself**. Copying of solutions is cheating and will be dealt with severely.
- Good Luck!

Further Double Integrals

1. Evaluate the double integral of $f(x, y) = xy$ on the fours sided region with corners $(0, 0), (1, 0), (0, 1)$ and $(2, 1)$
2. Evaluate the double integral of $f(x, y) = x^2y^2$ on the region bounded by $y = x^2$ and $y = 2x$.
3. A production function is given by

$$f(x, y) = 400x^{0.3}y^{0.7},$$

where x is the number of units of labor and y is the number of units of capital. Find the average production if x varies from 40 to 50 units and y varies from 20 to 40 units.

Radian Measure of Angles

- **Read:** My notes posted on the website along with §8.1
- **Work:**1, 3, 6, 8, 11, 17

Sine and Cosine

- **Read:** My notes posted on the website along with §8.2
- **Work:**1, 3, 6, 12, 21, 23.

Derivatives and Integrals of Sine and Cosine

- **Read:** My notes posted on the website along with §8.3
- **Work:**1,5, 8, 13, 15,, 23, 27, 33, 39, 45, 47

The Tangent

- **Read:** My notes posted on the website along with §8.4
- **Work:**4, 10, 13, 23, 26, 32, 37