Hi kids! I don’t know how many of you saw the game, but it was one for the ages. Ducks 37, Beavers 33. So, the Oregon Ducks are going to the Rose Bowl!!!!!! In fact, Corey is GOING TO THE GAME!!!! He can’t afford it, but hey, he’ll probably have another 15 years to save the money up for next time before the Ducks go again. Here is a review sheet for the final exam, stay tuned on the course website for the stolen final! The final exam is cumulative, and takes place Wednesday of finals week, in our classroom, during our regular class time. Below are the sections not reviewed from the last review sheet. Good luck! And, have fun!!!!

1. Section 6.2: The inverse and implicit function theorems. This section contains, pretty much, what it advertises. A careful statement of both Theorems is given, with their proofs. Corey wouldn’t probably ask you to regurgitate the proof of either, although being familiar with the methods will be a good idea. Also, knowing the theorems exactly as stated will be important, as Corey could ask you to simply state one of the theorems. The homework for this section is a good thing to practice, but anything, really is fair game—both applications and theory.

2. Section 5.4: Lagrange multipliers. The Lagrange multiplier theorem is stated and proved (page 218), and again, it’d be a good idea to have a formal statement of the result in your mind in case Corey asks you for it—the proof, as in the implicit and inverse functions theorems, is not as good of a question for the final exam. Although, as in the proofs of the inverse and implicit function theorems, there are aspects of
the proof which may be of use. This theorem is more, really, about application, and
the homework and examples given are great to use as guides.

3. Section 7.1: Multiple integrals. This section contained a lot of basic stuff about
integration. At some point in your lives, you’re going to see some sort of integral
and say to yourself, “Self, what the heck does that even mean?” Well, this section
is where it starts! All of the results and definitions Corey considers basic, but that
doesn’t mean they’re not important! In fact, a firm understanding of these basic
notions are required to do even the most basic integral! Stuff such as partitions,
integrability, the convenient criterion, regions, and sets of volume zero are essential
to developing this theory.

4. Section 7.2: Fubini’s theorem. Cut and dried: Fubini’s theorem. Know what it says,
a statement of the theorem, and how to apply it.

5. Section 7.6: Change of variables theorem. This theorem is a great result which forms
the foundation for much of how the theory of integration on manifolds unfolds. The
cubical norm is a good thing to know, in addition, a general sense as to how the
buildup of the proof goes (for example, Lemma 6.3, and other various facts about
the cubical norm). The proof itself is detailed. Instead, beyond just being able to
state the result, there are a lot of examples where Corey could ask you to compute
something, and changing variables might be the way to go.

6. General information: The final is going to look a lot like the midterm, in that there
will be a few questions, and some choice as to which problems you do. You can bet
that there will be some questions that ask you only to regurgitate definitions, some
questions you’ll have seen before, and some that you haven’t. You can also bet that
it’ll be a good time!!! So good luck, have fun, and ROCK ON!