

Math 161 – Final Exam Information

General Final Exam Comments: A final exam is designed to test your overall understanding of the main concepts in a course. To some extent, it is a measure of how diligent and committed you have been to the course over the entire semester. This means that preparing for the exam will be easiest for those who have been studying regularly, who have not missed classes, and who have made a consistent effort to seek help when they need it. While it is true that different studying strategies will work for different students, I want to share with you some studying tips that I think will give you the best chance for success on the final exam:

1. First, and most important, don't wait until the last minute to start studying! A college level final exam covers a lot of material, and to be prepared for it, you need to give yourself the necessary time to not just do the problems, but to truly understand them and ask questions if necessary. Waiting until the night before to start studying will almost certainly not prepare you for the test.
2. Start by doing the practice final exam problems and the practice problems pertaining to the material we have done since the last exam (Sections 4.8, 4.9, 5.1, 5.2, 5.3, 5.4, and 5.5).
3. Go back and do problems from old exams and old practice exam problems to see what concepts you need to work on from earlier in the course. You can then do more practice problems pertaining to the topics you had trouble remembering as you were studying. Keep in mind that solutions to both midterm exams are in the binder in Darwin 108.
4. Also, remember that some studying is better than no studying at all! Even if you feel that you don't have time to do everything I've recommended in the above paragraph, spending some time preparing for the exam can make a big difference in your score on the exam. Please be aware that spending no time preparing for the final will likely have disastrous results, even if you did well on the previous two exams.

While there are no guarantees that any one studying strategy will work for every student, I think that following the plan outlined above will give you the best possible chance for success on the final exam.

- **Final Exam Coverage.** The exam will cover sections that were covered on the previous midterm exams (see past 2 review sheets) plus sections 4.8, 4.9, 5.1, 5.2, 5.3, 5.4, and 5.5. You can expect about 40% to 50% of the final exam to relate to material covered since the last exam, and the remainder to cover material from earlier in the course.
- **GUARANTEED PROBLEMS.** The test will contain roughly 8-10 total questions. Here are two problems that will *definitely* appear on the test:
 - A page where you calculate derivatives of several functions using shortcut formulas. NOTE: CALCULATORS WILL NOT BE ALLOWED ON THIS PAGE OF THE EXAM.
 - A page where you calculate integrals of several functions using the evaluation theorem or the substitution rule. NOTE: CALCULATORS WILL NOT BE ALLOWED ON THIS PAGE OF THE EXAM.

Review Topics on Material Covered After Exam 2

Note. As always, the following is not intended to be an exhaustive list of every single relevant topic we've covered. It should, however, give you an idea of the most important topics we have studied since the second midterm exam.

1. Given a function and an initial guess for a root, know how to use Newton's method to estimate a root of a function. Be able to do this using the iteration rule (numerically) and using a graph only (by graphing successive tangent lines).
2. Know how to calculate antiderivatives of functions and how to use them to find functions that have specific properties (this was section 4.9).
3. Understand what a definite integral means graphically in terms of areas and how to calculate it graphically. Know how to use leftsums, rightsums, and middlesums to estimate the value of an integral given a graph or given only a formula for the function.

Continued on Next Page →

4. Understand how to calculate the value of a definite integral exactly using antiderivatives (we talked about this in Section 5.3). Also know the relationship between velocity, displacement, and acceleration and how this relates to the definite integral.
5. Know how and when to use the substitution rule! This is a challenging task because you not only have to understand how the process works, but also have to know how to choose your u . The more practice you can get before the exam, the better!