

REVIEW SUGGESTIONS FOR THE FINAL EXAMINATION

The exam will cover material in Chapters 7–11 of the text except for Section 11.3, with a little more than half of it on material covered in the first two exams and a little less than half on new material from Chapter 11. The files `review1.pdf` and `math9Breview2.pdf` have more details on topics covered in the first two exams, so no effort will be made to repeat the contents of those files, but reviewing their contents is strongly recommended. New material to be tested will include (1) finding the centroids of plane regions with uniform density, (2) evaluating improper integrals which have either an infinite limit of integration or bad behavior at an end point, (3) computing the arc lengths of curves that are graphs, (4) finding the areas of surfaces obtained by rotating a curve $y = f(x)$ about the x - or y -axis, where we assume that $f(x) > 0$ in the first case and that the endpoints of the interval of definition are positive in the second.

The exam is designed to be about twice as long as the midterm exams, but students will have three hours to complete their work. There will be eight questions on the exam. Some will be straight mathematical questions, while others will involve applications of integrals to types of problems covered in the course. A few formulas that are more difficult to remember will be listed in the exam.

Here are a few more specific comments about material from Chapters 7–10. Work (or energy usage) problems are likely to be on the final exam. Nothing about the Logistic Equation or hyperbolic functions will be on the final exam. There is a good chance that integrands containing expressions like $\sqrt{2x - x^2}$ will appear on the exam. Some problems will involve working with standard trigonometric identities, and familiarity with basic formulas for expressions like $\sin(u + v)$ and $\cos(u + v)$ will be expected. Problems which require derivations of basic formulas will not be on the exam. There will not be any problems involving scientific laws or principles that were not covered in the text or course directory (including WeBWorK problems). If a particular type of problem proved to be difficult or challenging to a substantial number of students, there is a good chance that something similar will appear on the final exam.

The WeBWorK problems and the posted documents of notes for the lectures were sources for some of the problems on the exam, so these are recommended as sources for practice problems.