

Math Xa

Reviewing for the Final Exam

Fall 2004

The Math Xa final exam will be on Thursday, January 20, 2005 at 2:15–5:15 PM in Harvard Hall 201. If you have a conflict or there is some other reason why you cannot take the exam at this time, you should contact the registrar. The Math Xa course staff is not empowered to make accommodations or exceptions with regard to the final.

The final exam will cover Chapters 1–16 in *Calculus: An Integrated Approach to Functions and Their Rates of Change*, omitting sections 2.5 and Chapter 15. In addition to the material covered on the first two midterms, you will be responsible for the material below. We have included some suggested exercises for each topic. Solutions to the suggested problems will be posted on the course web page at a later date. You should also look at the review guides and suggested problems for Midterms I and II.

The final exam will consist of two parts. On the first part, you will be asked to calculate several derivatives. Calculators will not be permitted on this part of the exam. Once you hand in the first part of the exam, you may begin the second part, which will be very much like the midterm examinations. Calculators will be permitted on the second part of the exam.

Information on office hours and review sessions will be posted on the course web site.

- Understand and be able to analyze cubic and polynomial functions.

Suggested Exercises—Section 11.1. Exercises 14–21; pp. 377–379.

Section 11.2: 10, 11, 12, 14, 16, 19, 20; pp. 388–390.

Section 11.3: 8, 12; pp. 399–403.

- Understand and be able to to analyze rational functions, including asymptotic behavior.

Suggested Exercises—Section 11.4: 3, 5, 12; pp. 417–420.

- Understand and be able to apply the concept of an inverse function. To be able to find inverse functions when possible.

Suggested Exercises—Section 12.1. Exercises 1, 2, 8; pp. 427–428.

Section 12.2: 4, 9, 10; pp. 432–434.

Section 12.3: 5, 6; pp. 434–436.

- Understand and be able to apply the definition of a logarithm and be able to use the various properties of logarithms fluently.

Suggested Exercises—Section 13.1: 3, 4, 5; pp. 443–444.

Section 13.2: 2, 4, 6, 8, 10, 12; pp. 448–449.

Section 13.3: 4, 8, 12, 14, 16, 18, 20, 22, 25, 28; pp. 459–462.

Section 13.4: 4, 5, 6; p. 466.

- Understand and be also to differential logarithmic and exponential functions.

Suggested Exercises—Section 14.2: 1–5; pp. 475–476.

Section 14.3: 1–13, 16, 19, 21; p. 481–485.

- Understand the chain rule and be able to find the derivative of the composition of two functions.

Suggested Exercises—Section 16.1: 5, 8, 11, 13, 17, 18, 22–25; pp. 519–521.

Section 16.2: 5; p. 522.

- Be able to apply the chain rule to determine local and global extrema and apply these techniques to solving optimization problems.

Suggested Exercises—Section 16.3: 4–6, 13–18, 23–29, 35; pp. 529–534.