General Information:

- Exam 1 will take place on **Friday, February 27**, from 10:30am to 12:30pm.
- The exam will cover selected topics from sections 5.3-5.10, 6.1-6.5.

Bring to the Exam:

- Bring a graphing calculator to the exam. You will be at a disadvantage if you do not have one, and I cannot allow you to share a calculator with someone else during the test.
- Bring letter-sized piece of paper with whatever information you want on it. You may use both sides of the piece of paper.

Study Tips

- Review the homework assignments, Moodle quizzes, and worksheets from class. Make sure you understand anything that you missed previously.
- Work the recommended problems from the textbook (which are listed below). Check your answers in the back of the book.
- Go to the Visual Calculus website (http://archives.math.utk.edu/visual.calculus/index.html), and work “drill problems”. These problems usually have solutions that are worked out completely.
- Go to the Math Study Room or come to my office if you have any questions.

Topics

- **Derivatives:** You should be completely comfortable computing derivatives using the power rule, product rule, chain rule, and quotient rule. This is not a topic from this course, but many topics from this course require computing derivatives.
  - **page 255:** 1, 3, 5, 7, 11, 23, 31, 35, 37 (work additional odd-numbered problems if you need more practice with derivatives)
• **Basic Definite Integrals:** You should be completely comfortable computing these integrals by hand.
  - **Section 5.3:** 5, 7, 17, 21, 27

• **Techniques of Integration:** You should know \( u \)-substitution and integration by parts. Some problems may require using integration by parts twice, or performing a substitution before using integration by parts.
  - **Section 5.5:** 9, 13, 21, 29, 49, 59
  - **Section 5.6:** 5, 9, 17, 23, 25, 41

• **Approximate Integration:** Know how to approximate definite integrals using the left endpoint, right endpoint, midpoint, and trapezoids. Skip Simpson’s rule and error analysis.
  - **Section 5.9:** 7

• **Areas and Volumes:** Know how to compute areas and volumes using integrals. For volumes you should be able to find the volume of a solid of revolution (using discs or washers), and you should also be able to find the volume of a solid that is not a solid of revolution using cross-sections. Skip cylindrical shells.
  - **Section 6.1:** 1, 9, 13, 15, 25
  - **Section 6.2:** 1, 3, 7, 9, 11, 27, 29, 33, 37

• **Arclength:** Know how to compute the arclength of curves that are defined as functions and curves that are defined by parametric equations.
  - **Section 1.7:** 15, 17, 29, 31
  - **Section 6.3:** 3, 5, 7, 17, 19

• **Improper Integrals:** On the exam, you should make sure to check whether an integral is improper. I recommend reviewing limits involving infinity by working the problems from Section 2.5.
  - **Section 2.5:** 15–25 odd, 27, 29, 33
  - **Section 5.10:** 5, 9, 11, 13, 15, 19, 23, 25, 27

• **Additional Applications of Integration:** Know average value and center of mass.
  - **Section 6.4:** 1, 3, 13
  - **Section 6.5:** 35, 37