

Midterm I: Some problems for review

The exam will in the regular classroom (SCB 303) on Tuesday, Feb 11 during the regular class period (8 - 8:50 AM). You will do it on WebAssign. The exam is protected by a passcode which will be given to you at the time of the exam. You will bring your own laptop and pocket calculator (of any kind). You are not allowed to use any app on your laptop, even the calculator app. Your web browser should occupy the full screen at all time. Phones and notecards are not allowed. The instructor will provide scratched papers for you. You will have two attempts. The higher score will be your final score. All questions will be automatically graded, so you will see your score when you finish your exam or when the time is up.

The material covered is Chapter 7 (except 7.6) and Section 8.1. You should review the homework problems, worksheets, quizzes, examples given in the lectures. It is always a good idea to study for the exam with someone. Some problems to practice:

1) Does the improper integral $\int_0^\infty \frac{1}{x^2+4} dx$ converge? If so, find its value.

2) Find the length of the curve $y = x^{3/2}$ where $0 \leq x \leq 1/4$.

3) Find the following integrals:

(a) $\int \sqrt{x} \ln x \, dx$

(b) $\int_0^7 \frac{1}{\sqrt[3]{x+1}} dx$

(c) $\int_0^{\pi/2} \sin^3(2x) \cos^2(2x) dx$

(d) $\int_0^{\pi/3} \sec^2 x \tan^2 x dx$

(e) $\int_1^3 \frac{x^3-1}{x+2} dx$

4) Use the trapezoid rule with $n = 3$ to evaluate the integral $\int_1^4 \frac{1}{x^3+1} dx$.