

Review for Exam 1

MATH 131: Calculus II

IMPORTANT: We will be taking our first exam on Thursday, February 20th in Gulick 2000 (our lab room). Bring a pencil (or two) and an eraser. You should NOT use pen on the exam unless you have some kind of erasable pen. I will provide you with a non-graphing calculator. Remember that normally I have randomized seating at the exam; since the class is small, I will allow you to choose your own table, but there will only be one student per table and you should be as spread out as possible.

Types of Problems You Might See:

The suggested practice problems listed after each type of problem are from the Chapter 5 Review on pages 398-402 unless otherwise stated.

1. Estimate the area under the curve of $f(x)$ on $[a, b]$ using a given number of approximating rectangles - (#'s 5 and 9(a); for other examples see your class notes and Week 2 Lab #1; you will only need to do these with right endpoints).
2. Evaluate sums and infinite limits of sums - (see Section 5.1 #49 and problems involving evaluating definite integrals with the definition).
3. Evaluate integrals by interpreting them as areas - (#'s 23 and 25).
4. Use the **definition** of the definite integral to evaluate integrals - (#'s 9, 13, 14; note you can use the Fundamental Theorem of Calculus Part 2 to check your answer).
5. Evaluate an integral using properties and given information about related integrals - (#'s 15-21).
6. Know to split up your integral if your integrand involves an absolute value, etc. - (We saw this in several questions; see Week 4 Lab #1 for an example.).
7. Use the Fundamental Theorem of Calculus Part 1 to find the derivative of an Area function - (#'s 29-34, 100-103, 115; review more in classnotes, Main Exercises and Week 3 Lab #3.).
8. Find antiderivatives and evaluate integrals using the properties, formulae and u -substitution - (#'s 39-85 odd).
9. Find the average value of a function on a given interval - (#'s 98, 99).
10. True/False questions - (#1, also most sections have a true/false or a explain why/why not question in the exercises).

BEWARE of infinite discontinuities in definite integrals! **DO NOT** forget your family (+ C 's) on your indefinite integrals.

NOTE: You will not necessarily be told specifically when you need to interpret an integral as an area in order to evaluate it. Consider this option especially when you have something with a root that may be an equation for part of a circle.

NOTE: When simplifying, make sure you have gathered all like terms, eliminated negative exponents and fractions within fractions, as well as cancelled where possible. **HOWEVER**, it is more important that you make sure you have the main part of each problem done first before you start concentrating on adding fractions, etc.

NOTE: This is a **rough** outline. Every problem may not fit exactly into one of the types above. The exam will be over Sections 5.1-5.5. You should be sure to review all of your labs, homeworks (main, reading and WeBWorK), and notes from these sections. All lab keys are posted on our website.