

Review for Exam 1

MATH 131: Calculus II, Sections 2 and 3

IMPORTANT: We will be taking our first exam on Thursday, September 24th in Gulick 206A (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.

Types of Problems You Might See:

The suggested practice problems listed after each type of problem are from the Chapter 5 Review on pages 394-397 unless otherwise stated.

- * Estimate the area under the curve of $f(x)$ on $[a, b]$ using a given number of approximating rectangles - (#7(a); for other examples see your class notes and Week 1 Lab #4; you will only need to do these with right endpoints).
- * Evaluate sums and infinite limits of sums - (see Section 5.1 #41 and problems involving evaluating definite integrals with the definition).
- * Evaluate integrals by interpreting them as areas - (#'s 3 and 5).
- * Use the **definition** of the definite integral to evaluate integrals - (#'s 7, 13; use the Fundamental Theorem of Calculus Part 2 to check your answer).
- * Evaluate an integral using properties and given information about related integrals - (#'s 37-43).
- * Know to split up your integral if your integrand involves an absolute value, etc. - (We saw this in Week 3 Lab #4.).
- * Use the Fundamental Theorem of Calculus Part 1 to find the derivative of an Area function - (#'s 48, 50, 51, 69; review more complicated versions in classnotes, Main Exercises and Week 3 Lab #3.).
- * Find antiderivatives and evaluate integrals using the properties, formulae and u -substitution - (#'s 15-29 odd, 49 and 63-67 odd).
- * Find the average value of a function on a given interval - (#'s 46, 47).
- * True/False questions - (#1, also most sections have a true/false or a explain why/why not question in the Further Explorations part of the exercises in each section).

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 homeworks (main, reading and WeBWorK), labs, extra fun, and notes from these sections. Recall that all lab keys are either posted on our website or obtainable by sending me an email.