Review for Exam 1

MATH 130: Calculus I

IMPORTANT: We will be taking our first exam on Thursday, February 15th in lab. I will provide you with a non-graphing calculator; you may **not** use your own. Remember that there will be randomized seating at the exam. Wait until the names have been laid out before taking a seat in Gulick 2000.

Below are listed some of the types of problems that may appear on the exam. After many of them are suggested practice problems from the review sections of Chapter 1 (pgs. 51-53) and Chapter 2 (pgs. 123-125). Remember that you can always try problems I did not assign from the sections as well. Your Extra Fun sheets give you many practice problems as well!

Know How to...

(1) identify the domain of a function, including domains of logarithmic functions (1: 2).

(2) write solutions in interval notation.

(3) determine if a function is even, odd or neither (1: 21).

(4) compose functions together and find their domains (1: 15, 16).

(5) show whether or not a function is one-to-one.

(6) find a formula for the inverse of a function and state its domain and range (1: 27).

(7) graph e^x, $\ln x$, $\arcsin x$, $\arctan x$ and other functions such as those on the list of elementary functions in the back of your text, as well as various shifts and reflections of these graphs (1: 5, 13, 14, 24, 33).

(8) manipulate expressions using logarithmic properties.

(9) solve for x in equations involving exponential and logarithmic functions (1: 22, 23).

(10) solve and simplify expressions involving inverse trigonometric functions (1: 37-51 odd).

(11) prove a limit using the ϵ-δ definition (2: 60).

(12) compute limits using limit laws.

(13) and when to check limits from both sides.

(14) and when to apply the Squeeze Theorem to evaluate limits (2: 24).

(15) and when to compute limits using factoring, rationalizing, etc. (2: 9-21 odd).

(16) find limits using graphs of functions (2: 2).

(17) evaluate one-sided limits (2: 22).

(18) evaluate infinite limits (2: 25-29 odd).

(19) create the graph of a function with certain properties (2: 7).

(20) find vertical asymptotes of a function (2: 30, 41).

(21) evaluate limits at infinity for rational functions (2: 31, 33, 37 odd).

(22) find horizontal asymptotes of a rational function (2: 42).

Remember...

(1) $f^{-1}(x)$ does **NOT** mean one over the function!

(2) to include the limit sign and equals sign where appropriate!

(3) to review your definitions and theorems.

(4) to show your work, including when you take logs or exponentiate.

(5) to practice problems with**out** your book or notes or collaborators.

(6) to bring a pencil (or two) with a good eraser.

(7) to ask me questions if you are stuck or need clarification.

(8) to breathe!

NOTE: There may be true/false and short answer questions in addition to problems. See your homeworks for examples of these as well as Chapter 1 Review exercise 1 (page 51) and Chapter 2 Review exercise 1(a-e) (page 123).

NOTE: This is a **rough** outline. The exam will be over sections 1.1-1.4, 2.1-2.5 and 2.7. You should be sure to review all of your homeworks, labs, practice problems and **notes** from these sections. While there will be more weight on the material in Chapter 2 than in Chapter 1, there could be about one-third of the exam on the review material in Chapter 1.