

UPDATED GENERAL INFORMATION – OCTOBER 14, 2019

The midterm examination

The midterm examination **will** take place on Wednesday, November 6, during the lecture session, and it will cover material through Chapter 4. One of the course teaching assistants, Maranda Smith, will be proctoring this examination. Further information and practice problems will be posted later. In the meantime, the following documents contain a good assortment of exercises:

<http://math.ucr.edu/~res/math144-2017/aabUpdate03.144.f17.pdf>

<http://math.ucr.edu/~res/math144-2017/aabUpdate04.144.f17.pdf>

<http://math.ucr.edu/~res/math144-2017/aabUpdate05.144.f17.pdf>

Supplementary readings for Chapter IV

Here are some documents and descriptions of their contents.

<http://math.ucr.edu/~res/math144-2017/nonelementary-integrals.pdf>

To quote from the beginning of this document, “Although the methods in standard calculus textbooks allow one to find the indefinite integrals (or antiderivatives) of many functions that arise in the subject, there are also many examples that cannot be handled using elementary techniques like change of variables, integration by parts, partial fraction expansions or trigonometric substitutions.” This document discusses some of the most basic examples and includes references for further information.

<http://math.ucr.edu/~res/math144-2017/lambert-fcn-2017.pdf>

If f is a strictly increasing continuous function which is defined on the reals and its image is the entire real line, then f has a continuous image g with the same properties. Furthermore, if f is differentiable everywhere then the formula for derivatives of inverse functions shows that g is also differentiable. However, one can find examples where f

is expressible in terms of the functions studied in first year calculus but its inverse g has no such expression. This file describes a very simple example of such a function f and gives references to proofs that the inverse g cannot be described in terms of elementary functions from first year calculus.

<http://math.ucr.edu/~res/math144-2017/inverses.pdf>

Since we use the notation f^{-1} for both inverse images and inverse functions, some confusion is possible when both concepts occur simultaneously. This file shows that the overlapping notations are consistent in the case of one potential ambiguity.