

UPDATED GENERAL INFORMATION — NOVEMBER 27, 2017

More on the third quiz

Practice problems and solutions are posted in `aabUpdate07.144.f17.pdf` and `quiz3prep.pdf`. As indicated earlier, the quiz will cover Section V.2 in the notes.

Assignments for Chapter V

Working the exercises listed below is **strongly recommended**.

The exercises below are taken from `set theory-exercises.pdf`. NOTE: There are misprints in the numberings of sections for Chapter V of `set theory-exercises.pdf`. Section V. n of `set theory-notes.pdf` corresponds to the section denoted by IV. n on pages 29–32 of `set theory-exercises.pdf`. In this file we shall denote these sections by V. n rather than IV. (n) .

- Section V.1, Exercises to work: 1–3
- Section V.1, Problems for study: Lipschutz, 2.88, 2.92(c)
- Section V.2, Exercises to work: 1–3
- Section V.2, Problems for study: Lipschutz, 1.36, 1.74–1.75
- Section V.3, Exercises to work: 1–3
- Section V.3, Problems for study: Lipschutz, 1.25
- Section V.4, Exercises to work: 1–3
- Section V.4, Problems for study: Lipschutz, 2.14–2.15, 2.17, 2.25–2.28, 2.71–2.72, 7.22, 7.66
- Section V.5, Exercises to work: 1–3
- Section V.5, Problems for study: Lipschutz, 4.55(c), 6.17

The following references are to the course directory file `exercises93f17.pdf`:

- Section V.1: 102–105
- Section V.2: 101–103, 105, 107–110, 112
- Section V.3: 101
- Section V.4: 101–103
- Section V.5: 103 (see Exercise V.5.2 in `set theory-exercises.pdf` for additional information and `solutions93f17details.pdf` for the computations)

Reading assignments from solutions to exercises

The solutions to these exercises in `set theory-solutions.pdf` and `solutions93f17.pdf` should be read and understood at the passive level. Here is the difference between passive and active understanding:

A passive understanding means that one can follow the reasoning presented in a written proof fairly well.

An active understanding means that one knows the argument well enough to explain it correctly — or nearly so — to someone else (for example, on a quiz or examination).

The following are taken from `set theory-exercises.pdf` and `solutions93f17.pdf`:

Section V.1, Solutions to read: 4, 101, 106

- Section V.2, Solutions to read: 3, 104, 106, 111
- Section V.3, Solutions to read: 102–103
- Section V.4, Solutions to read: 104–105
- Section V.5, Solutions to read: 101 (probably the most difficult in this group)

Reading recommendations for other files

Here are the recommendations for Chapter V.

<http://math.ucr.edu/~res/math144-2017/maximality-of-reals.pdf>

A justification for the intuitive idea that the real numbers are the unique largest mathematical system in which (a) one has the standard rules for arithmetic involving addition, subtraction, multiplication and division, (b) one has a linear ordering which satisfies the standard arithmetic rules for inequalities, (c) given two elements of the system, there is a rational number between them. One particularly noteworthy feature of this document is that it discusses the types of infinite set-theoretic constructions that are needed to construct the real numbers from the rationals (and were introduced by R. Dedekind in the 19th century).

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

<http://math.ucr.edu/~res/math144-2017/strong-induction2.pdf>

An example illustrating one use for the Strong Principle of Finite Induction and further discussion to show that the lower estimate in the result is optimal.