

Math 330 Section 6 - Fall 2019 - Homework 13

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Running total: 45 points

Update November 12, 2019

Written assignment 2: You are not allowed to use anything after *def.9.20* (I erroneously wrote *def.9.19*).

Status - Reading Assignments: You were asked to complete the following reading so far:

B/G (Beck/Geoghegan) Textbook:
ch.1 – ch.8 (ch.7 only until thm.7.17)

MF lecture notes:
ch.2, ch.3, ch.5 – ch.10, ch.11 through ch.11.2.1

B/K lecture notes:
ch.1.1 (Introduction to sets) (optional)
ch.1.2 (Introduction to Functions) but skip ch.1.2.4: Floor and Ceiling Functions (optional)

Stewart Calculus 7ed - ch.1.7: "The Precise Definition of a Limit".

New reading assignments:

Reading assignment 1 - due Monday, November 4:

- a. Carefully read MF ch.11.2.2. Be sure to look at the examples: A lot of the material will be unfamiliar and there a lot of definitions to understand.
- b. Skim MF ch.11.2.3. None of this material will be on any quizzes or exams.

Reading assignment 2 - due: Wednesday, November 6:

- a. Skim B/G ch.13 (Cardinality). Most of the material can be found in MF ch.7 and ch.10. None of this material will be on any quizzes or exams if it cannot be found in the MF doc.

Reading assignment 3 - due Friday, November 8:

- a. Carefully read MF ch.12 through ch.12.1.3.

Written assignment 1: Prove MF thm. 9.9: If $m \in \mathbb{N}$ is not a perfect square then \sqrt{m} is irrational.

Written assignment 2: MF exercise 9.18: Let $x_n := (-1)^n$ for $n \in \mathbb{N}$. Prove that $\liminf_n x_n = -1$ and $\limsup_n x_n = 1$ by working with the tailsets of that sequence. You are not allowed to use anything after def.9.20. **Hint:** What is α_n and β_n ?