Math 330 Section 4 - Fall 2021 - Homework 10

Published: Tuesday, October 12, 2021 *Running total:* 41 *points*
Last submission: Friday, October 29, 2021

Status - previously assigned reading Assignments:

B/G (Beck/Geoghegan) Textbook:
ch.1-7 (until Theorem 7.17)

MF lecture notes:
ch.2-3, ch.4 (skim), ch.5-8

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)

New reading assignments:

Reading assignment 1 - due: Monday, October 18:

- Read carefully MF ch.9.1–9.2.

Reading assignment 2 - due: Wednesday, October 20:

a. Read carefully B/G ch.8. This is a repetition of some of the MF material, mostly in ch.3 and ch.9.1–9.2
b. Read carefully B/G ch.9. Ch. 9.1 corresponds to MF ch.6.2 and the material of ch.9.2 can also be found in MF ch.5.2.5.

Reading assignment 3 - due Friday, October 22:

a. Read carefully MF ch.9.3 until before Definition 9.12 (Continuity in $\mathbb{R}$).
Draw plenty of pictures to visualize why the sequence $x_n = 1/n$ satisfies the abstract definition of convergence and the sequence $x_n = (-1)^n$ does not.

Written assignments:

Written assignment 1: Prove Proposition 7.13: Every infinite set contains a proper subset that is countably infinite.

Written assignment 2:

Prove cor.7.3: If X is uncountable and $A \subseteq X$ is countable then $A^{\complement}$ is uncountable.