Math 330 Section 6 - Spring 2020 - Homework 09

Published: Thursday, February 27, 2020 *Running total: 37 points*
Last submission: Friday, March 20, 2020

Status - Reading Assignments:

Here is the status of the reading assignments you were asked to complete by this date.

B/G (Beck/Geoghegan) Textbook:
    ch.1 – 9 (ch.7.2 until thm.7.17), ch.10 through prop.10.13 in ch.10.4.

MF lecture notes:
    ch.2, ch.3, ch.5 – 8, ch.9.1 – 9.3

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, March 9:

  a. Carefully read the remainder of B/G ch.10.
  b. Carefully read MF ch.9.4 and 9.5.

Reading assignment 2 - due: Wednesday, March 11:

  a. Carefully read MF ch.9.6 and 9.7.
  b. Carefully read B/G ch.11.

Reading assignment 3 - due Friday, March 13:

  a. Carefully read MF ch.9.8 (but not the optional stuff).
  b. Skim (the optional) MF ch. 9.10.

Written assignments:

Written assignment 1:

Prove lemma 7.1: Let X, Ω be sets such that $X \subseteq \Omega$ and $\omega \in X^{\complement}$, and let $\mathfrak{B} := \{A \uplus \{\omega\} : A \in 2^X\}$.

Then the function $F : 2^X \to \mathfrak{B}; \ A \mapsto A \uplus \{\omega\}$ is a bijection.

Written assignment 2:

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