Math 330 Section 2 - Fall 2018 - Homework 08

Published: Friday, September 21, 2018 *Running total:* 35 *points*
Last submission: Friday, October 5, 2018

Status - Reading Assignments:

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

B/G (Beck/Geoghegan) Textbook:
Preface, ch.1 – ch.6, B/G ch.7.1 (only prop.7.9 – prop.7.12)

MF lecture notes:
ch.1 – ch.3, ch.5, ch.6.1, 6.2, 6.4 – 6.11 (skip ch.6.3) ch.7.1, 7.2
ch.19.7.2 (The Addition Algorithm for Two Nonnegative Numbers (Base 10))

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

New reading assignments:

Reading assignment 1 - due Monday, September 24:

- **a.** Read carefully MF ch.6.12 (Binomial Coefficients – NEWLY ADDED to ver 2018-09-20) and compare to the material in B/G ch.4.4.
- **b.** Read carefully the addenda to MF ch.6. Note that material in any of the addenda chapters may have its references changed in later editions!
- **c.** Read carefully the remainder of MF ch.7.

Reading assignment 2 - due: Wednesday, September 26:

- **a.** Read carefully B/G ch.9.1. The material should be familiar from MF ch.5.
- **b.** Read carefully MF ch.8., but skip the optional chapter 8.3.

Reading assignment 3 - due Friday, September 28:

- **a.** Read carefully MF ch.9.1.

General note on written assignments: Unless expressly stated otherwise, to prove a proposition or theorem you are allowed to make use of everything in the book up to but NOT including the specific item you are asked to prove.

Written assignment 1: Prove MF excercise 6.8 (B/G prop.6.30):

Let $k, m, n \in \mathbb{Z}$. Then $\gcd(km, kn) = |k| \cdot \gcd(m, n)$. Be sure to read the hints given in exercise 6.8! They have been enhanced in version 2018-10-01 of the MF doc. You must reference what you use from ch.6, but you may use, e.g., facts like $|ab| = |a| \cdot |b|$ without having to refer to them.

Written assignment 2: Prove part c of MF lemma 7.5:

Given the assumptions in that proposition, it follows from $A_n \neq \emptyset$ that $a_n = \min(A_n) \geqq n$.