

Math 330 Section 5 - Spring 2018 - Homework 09

Published: Thursday, February 11, 2018
Last submission: Wednesday, March 14, 2018

Running total: 38 points

Status - Reading Assignments:

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

B/G (Beck/Geoghegan) Textbook:

- all of ch.1, ch.2 except the material on $\gcd(m, n)$, all of ch.3 – ch.7 (ch.7: skip all after thm.7.17), ch.8, ch.9.1
Read carefully MF ch.9.2.

MF lecture notes:

- ch.1 – ch.3, ch.5, ch.6 (skip ch.6.3), ch.7, ch.9.1 - 9.3
- ch.17 (Addenda to B/G): the chapters corresponding to what has been assigned so far from B/G.

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

Other:

Stewart Calculus 7ed - ch.1.7: "The Precise Definition of a Limit". If you have a newer or older edition then you may have to search through the table of contents and/or consult the index.

New reading assignments:

Exam 1 preparation:

- Nothing that has not yet been taught by the end of Fri, 2/23, will be on the exam. Nothing from B/G that follows ch.6 will be on the exam, even though I'll talk about the items you must know to solve the problems for homework 8. There is one **EXCEPTION** though: B/G ch.9.1 on (Injections and Surjections) is on the plate!
- Proofs by induction (strong and ordinary) are disproportionately important. Review your homework and the proofs you have seen both in the B/G text and the MF lecture notes. Also note that the top of the Q & A section of the announcement page has a link to a PDF with six sample problems. #2 – #6 would be good for practice. I have made some of the solutions available TODAY.
- You may exclude MF ch.4 and the part of MF ch.7.1 which follows prop.7.7.
- Be sure you are comfortable with the general tools: sets, families, functions and relations, especially equivalence relations, direct/indirect images.

Reading assignment 1 - due Friday, March 2:

- Reread MF ch.9.1 and ch.9.2 a second time and make connections to what you have been taught in Calc 1, 2, and 3.

Written assignment 1: Prove B/G Prop.6.28 by strong induction on k : Let $k \in \mathbb{N}$ such that $k \neq 1$. Then there exists $n(k) \in \mathbb{N}$ and primes $p_1, p_2, \dots, p_{n(k)}$ such that $k = p_1 \cdot p_2 \cdot \dots \cdot p_{n(k)}$. You are not allowed to use any material that follows prop.6.28!