Math 330 Section 6 - Fall 2019 - Homework 11

Published: Thursday, October 17, 2019 *Running total:* 41 *points*
Last submission: Friday, November 1, 2019

Status - Reading Assignments:

Here is the status of the reading assignments you were asked to complete 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.9.4

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 21:

- **a.** Read 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. If you used another calculus book then bring it to me and we can find the appropriate pages.
- **b.** Read carefully MF ch.9.5 – 9.7

Reading assignment 2 - due: Wednesday, October 23:

- **a.** Read carefully MF ch.9.8.

Reading assignment 3 - due Friday, October 25:

- **a.** Read carefully MF ch.9.9 and skim the optional chapter 9.10.
- **b.** Read carefully MF ch.10.1 up to and including prop.10.1.

The following assignments are MF prop.8.9.a and MF prop.8.9.b. In each case you don't have to prove both "$\Rightarrow$" and "$\Leftarrow$" since the other inclusion is an immediate consequence of an earlier prop./thm./cor./lemma in ch.8.4 (Set Operations involving Direct Images and Preimages). Go on a treasure hunt! But no credit unless you clearly write down that reference!

Additional hint (Oct. 27, 2019): Look at the formulas of MF prop.8.7 and prop.8.8

Written assignment 1: Let $A \subseteq X$. If $f : X \to Y$ is injective then $f^{-1}(f(A)) = A$.

Written assignment 2: Let $B \subseteq Y$. If $f : X \to Y$ is surjective then $f\big(f^{-1}(B)\big) = B$.