

Math 330 Section 3 Homework 19

Due date: Wed, December 8, 2015
Last submission Mon, December 14, 2015(!!)

Running total: 55 points

Status - Reading Assignments:

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

Textbook:

all of ch.1 - ch.6, ch.7.1,
all of ch.8 - ch.13

Other course material (course materials page):

“Logic part 1”, “Sets part 1”, “Sets part 2”, “Functions part 1”, “Functions part 2”

“Lecture Notes: Math 330 - Additional Material”:

All of ch.3 (understand the material)
all of ch.4 (understand the proofs!)
all of ch.5 (learn all definitions and the two theorems at the end, skip the proofs)
All of ch.6 (understand the material) EXCEPT ch. 6.2.2 on normed vector spaces
all of ch.7 with the following **exception**:
ch.7.1.4: skip the end of ch.7.1.4, starting at def. 7.12
ch.7.4 (addenda): skip subchapter 7.4.4 (Hahn-Banach)
Reread ch.7.4: new material on metric subspaces
Ch.8.1-8.3: Skip the proofs of 8.3 but be sure to learn the definitions and theorems!

Reading assignment 1: due Wed, 12/09/2015

“Lecture Notes: Math 330 - Additional Material”:
Ch.8.4-8.5

Reading assignment 2: due Fri, 12/11/2015

Download the latest version **2015-12-07** of the MF document: ch.8.7.2 was newly added.

“Lecture Notes: Math 330 - Additional Material”:
Ch.8.6-8.7, but skip ch.8.6.1: Proofs for (open covering) compactness

B/G Textbook:

all of B/G Appendix A: “Continuity and Uniform Continuity”

You may find it useful to look at this chapter earlier as it deals with some of the material of MF ch.7-8 in the more familiar context of the real numbers (but you must also learn the material in the setting of metric spaces).

Assignment 1:

Give an alternate proof of Theorem 8.15 (Continuous images of compact spaces are compact) using sequence compactness. You can find an outline of the proof in ch.8.7.2 (remark 8.4) but you must flesh it out.