

Math 330 Section 1 - Fall 2016 - Homework 10

Published: Friday, October 14, 2016
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Running total: 45 points

Changed hint for problem 1 from using B/G prop.8.37(iv) to using B/G prop.8.37(ii).

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 - ch.10 (skim 7.2)

MF lecture notes:
ch.1, ch.2, ch.4-ch.6

B/K lecture notes (optional reading – good for examples, improved understanding):
ch.1.1, ch.4.1, ch.4.2

New reading assignments:

Reading assignment 1 - due Monday, October 17:

Read carefully MF ch.8 up to and including prop.8.6 but
SKIP THE PROOFS of prop. 8.4, 8.5 and 8.6 and of cor.8.2

Reading assignment 2 - due: Tuesday, October 18:

Read carefully the remainder of MF ch.8.2
Read carefully MF ch.8.3 up to and including prop.8.7.

Reading assignment 3 - due Wednesday, October 19:

Read carefully the remainder of MF ch.8.

Reading assignment 4 - due Friday, October 21:

Read MF ch.9 up to and including example 9.20 to refresh your knowledge of linear algebra.
If you have not taken/are not taking it now, contact me immediately!

Written assignment 1:

Let $x, y \in \mathbb{R}$ such that $x < y$. Let $z := (x + y)/2$. Prove that $x < z < y$. **Hint:** Prove first that $2x < x + y < 2y$. Then use B/G prop.8.37(ii): $[\alpha > 0 \text{ and } \alpha u < \alpha v \Rightarrow u < v]$ to show that $x < z < y$.

Written assignment 2:

Prove part of B/G prop.8.49: Let $A \subseteq \mathbb{R}$ such that $A \neq \emptyset$. If $\sup(A)$ exists and if $\sup(A) \in A$ then $\max(A)$ exists and $\max(A) = \sup(A)$.

Written assignment 3:

Prove B/G Prop.9.7(ii): The composition of two surjective functions is surjective.