Math 330 Section 2 - Spring 2017 - Homework 01

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Updated on Jan 22, 2017 with hints to the written assignments.

New reading assignments:

Reading assignment 1 - due Wednesday, January 18:
  Read ch.1: Before you start of the MF document (newest version: 2016-01-16)
  Read carefully ch.1 of B/G through prop. 1.17.

Reading assignment 2 - due: Friday, January 20:
  Read carefully the remainder of ch.1 in B/G.
  Read ch.2.1 (Sets and basic set operations) of the MF document.

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 B/G Prop.1.8: Let $a \in \mathbb{Z}$. Then $(-a) + a = 0$.

Use here and in all subsequent homeworks the notation given in the assignment sheet, **even if the symbols are different from the ones used in the text!**

Written assignment 2:
Prove B/G Prop.1.10: Let $a, x_1, x_2 \in \mathbb{Z}$. If both $a + x_1 = 0$ and $a + x_2 = 0$ then $x_1 = x_2$.
Hint: You may use B/G prop.$1.6 - 1.9$ in addition to the axioms.

Hints for assignments #3 and #4:
a. Do **NOT** use commutativity: the variables appear in the same left–to–right order on both sides!
b. Obviously you'll have to utilize ax.1.1(ii) to prove #3 and #4. Tell me me what you plug in for m, n, p in that axiom.

Written assignment 3:
Prove B/G Prop.1.11(ii), part 1: Let $a, b, x, y \in \mathbb{Z}$. Then $a + \big(b + (x + y)\big) = (a + b) + (x + y)$

Written assignment 4:
Prove B/G Prop.1.11(ii), part 2: Let $a, b, x, y \in \mathbb{Z}$. Then $(a + b) + (x + y) = \big(a + (b + x)\big) + y$

Written assignment 5:
Prove B/G Prop.1.11(iv): Let $x, y, z \in \mathbb{Z}$. Then $x(yz) = z(xy)$