

# Math 330-05 Number Systems

## Fall 2014

### Homework Assignments

## Instructions

Complete all the problems in each section of the textbook as we go through them, as well as any other problems assigned in class. I will assign certain problems to be handed in; they will be due on the Monday of the following week. Although you may (and should) work together with your class mates, such cooperation should NOT include exchange of written material. The solutions you hand in have to be your own.

Use 8.5in x 11in paper with smooth borders. Write your name on top of each page.

### #1

Due Monday, 9/8

1. READ THE BOOK!
2. Prove Prop. 1.11(iv).
3. Prove Prop. 1.18.
4. Prove Prop. 1.19.
5. Prove Prop. 1.24.

### #2

Due Monday 9/15

1. Prove Prop. 1.27 (iii), (iv).
2. Prove that  $1+1 \neq 1$ .
3. Prove Prop. 2.12 (ii).
4. Prove transitivity of " $\leq$ ".

### #3

Due Wednesday 9/24

1. Prove Prop. 2.18(i) and (iii).
2. Prove Prop. 2.23
3. Project 2.28
4. Project 3.7 (iii), (v) and (vii).

## #4

Due Friday 10/10

1. Read Chapter 4 and 5.
2. Prove Prop. 4.30 (hint: Do strong induction on  $k$ . For the base case, you need to do other induction on  $m$ ).
3. Prove Prop. 4.31 (hint: Do strong induction and use Prop. 4.30).

## #5

Due Friday 14/11

1. Prove Prop. 10.13(ii).
2. Prove Prop. 10.14.
3. Prove Prop. 10.17.

## #6

Due Friday 12/12

1. Project 13.15.
2. Prove Theorem 13.28

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