

Name:

Collaborator(s)¹:

Math 213, Section F1, Prof. Hildebrand, Fall 2010
Graded HW Assignment 9, due Friday, 11/12/2010

Instructions

- **Use this sheet as cover sheet and staple it to the assignment.** Do the problems in order, and make sure that each problem is clearly labelled. Leave plenty of space for the problems. The assignment is due in class on the above date; late homework, or homework dropped off in mailboxes, will not be accepted. See the Course Information Sheet for the policy on “excused” homework. Work on the problems with another student or in a small group is fine and, indeed, encouraged, **provided** (i) you write up solutions yourself, using your own words, and (ii) you indicate the names of the student(s) you worked with on the cover sheet.
- **Getting help:** Open House hours are Tuesdays, Wednesdays, and Thursdays, 5 pm - 6 pm, in 159 Altgeld (or an adjacent room in case 159 is taken). The Open House is intended as informal get-together and office hour for students in my classes. Take advantage of this opportunity!
- **About these problems:** For most of the problems you have to determine which of the various properties (reflexive, symmetric, antisymmetric, transitive) hold for a given relation. Answer these questions as follows. (A similar policy on answers and justifications will be used in the exam.)
 - If a property holds for a given relation, just state so; a proof is not required.
 - If a property does **not** hold, say so, **and provide a *specific* counterexample.** For instance, the relation “ a and b have a common prime factor” on the set of positive integers is not transitive, as demonstrated by taking $a = 2, b = 6, c = 9$: 2 and 6 have common prime factor 2, so $(2, 6) \in R$; 6 and 9 have common prime factor 3, so $(6, 9) \in R$, but 2 and 9 have no common prime factor, so $(2, 9) \notin R$.
 - The last two problems ask whether a given collection of sets constitutes a partition. Answer these questions, **and provide a brief justification for your answer.**
- **Solutions and next hw assignment:** I will hand out solutions on Friday, so you will have them available for studying for Monday’s midterm. (The material covered by this assignment is part of the midterm syllabus.) Because of the midterm on Monday, there will be no homework assignment next week. The next (and last) hw assignment will be given out after the break.

Problems (from Rosen, 6th Edition)

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|-------------------|------------------|
| 1. 8.1:6(a)–(f) | 6. 8.5:30(a)(b) |
| 2. 8.5:2(a)–(e) | 7. 8.5:35 |
| 3. 8.5:3(a)(b)(c) | 8. 8.5:39(a)(b) |
| 4. 8.5:21 | 9. 8.5:43(a)(b) |
| 5. 8.5:22 | 10. 8.5:44(a)(b) |

Additional suggested problems (do not turn these in): The following problems are easy warmup questions; do at least some of these to get familiar with the basic definitions and concepts. You can check your answers in the back of the book. Section 8.1: 1(a)(b)(c), 3(a)(b)(c). Section 8.3: 1, 19, 31.

¹If you worked with another student or in a small group on this assignment, list the names of all students involved.