

Name:

Collaborator(s)¹:

Math 213, Section F1, Prof. Hildebrand, Fall 2010
Graded HW Assignment 6, due Friday, 10/22/2010

Instructions

- **Rules:** 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.
- **Write-up:** Solutions, rather than answers, are required. An answer alone will not earn credit. The solutions must be written up in a clear, logical manner, using correct mathematical terminology and notation, and any key steps explained.
- **About these problems:** The first set of problems (8 and 14 from 7.1) ask you to solve a *given* recurrence by iterative methods. This is quite routine.

Problems 19, 24, and 28 ask you to *derive* a recurrence relation for a given combinatorial quantity; use the examples worked out in class last Wednesday (in particular, the “bitstring” problem and the “ladder/staircase” problem) as models. (Problem 19 might look like a standard donut-counting problem, but the order matters here, and this completely changes the nature of the problem. For the problem you only need to come up with an appropriate recurrence relation, though not solve it.

The final problem asks you to classify recurrences.

Problems (from Rosen, 6th Edition)

- | | |
|---------------|--|
| 1. 7.1: 8(b) | 7. 7.1: 19 |
| 2. 7.1: 8(d) | 8. 7.1: 24 |
| 3. 7.1: 8(f) | 9. 7.1: 28 |
| 4. 7.1: 14(a) | 10. 7.2: 2 (all parts): For each part, classify the recurrence by the following categories: linear/nonlinear, homogeneous/nonhomogeneous, constant coefficients, degree. |
| 5. 7.1: 14(b) | |
| 6. 7.1: 14(c) | |

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