

Name: _____ Section (circle one): 9 am 10 am

Math 461, Sections B/C, Spring 2009
HW Assignment 6, due Friday, 3/13/2009

Instructions

- **Write your name on the cover sheet and staple the sheet to the assignment.** Do the problems in order, and make sure that each problem is clearly labelled. The assignment is due **in class** on the above due date. **Late homework, or homework dropped off in mailboxes, will not be accepted.** (You can, however, turn in the homework early, in my office, 241 Illini Hall, at any day before the due date.) If you cannot turn in an assignment on time, but have a legitimate excuse (e.g., illness), with appropriate documentation, the assignment will be marked as “excused”; see the Course Information Sheet handed out at the beginning of class for details.

Hints and comments

- As always, leave answers in “raw” form, such as $e^{-3}2^3/3!$, or $\binom{100}{3}.2^3.8^97$; you do not need to work out numerical answers (hence no need for calculators). The answers should not involve lengthy summations (containing more than a few terms).
- **Problem 24.** This problem deals with an interesting phenomenon that has led to the development of the field of *Game Theory*. Work out this problem carefully within a rigorous probabilistic framework. To this end, define A_1 to be the event “A picks number 1”, B_1 the event “B picks number 1”, and define A_2, B_2 analogously. The subproblems (a)–(d) correspond to various assignments of the probabilities of these events.
- **Problem 49.** This is similar to the “three coin” example worked out in class a few weeks ago. Use conditioning.
- **Problems 52–65.** These are routine problems involving the Poisson distribution.
- **Problems 73–79.** These are problems involving the geometric, negative binomial, or hypergeometric distributions. Problem 73 is a variation of the “baseball world series” problem worked out in class.

HW 6 Problems (pp. 187–197)

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| 1. #24(a)–(d) | 8. # 57(a)(b) |
| 2. #28 | 9. # 59(a)(b) |
| 3. #35 | 10. # 65(a)(b)(c) (skip (d)) |
| 4. #40 | 11. # 73 |
| 5. #49(a)(b) | 12. #75 |
| 6. # 50(a)(b) | 13. #79 |
| 7. # 52(a)(b) | |