

Name: \_\_\_\_\_ Section (circle one): 9 am      10 am

Math 461, Sections B/C, Spring 2009  
HW Assignment 8, due Friday, 4/10/2009

### 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.
- **About this assignment.** This assignment is on Sections 6.1 and 6.2 and the class material covered through Monday (4/6).

### Hints and comments

- **Make sure to specify ranges:** For problems asking for densities or p.m.f.'s (both single/marginal and joint), make sure to specify the range, i.e., the set of values on which the density/p.m.f. "lives", along with the formula. Without such a range, the specification is not complete.
- **Discrete joint distributions:** Problems 2, 4, 7, 11 involve discrete joint distributions. As always, you need to show work; in particular, for problems asking to "give" a joint p.m.f. (e.g., Problem 2), you need to work out the probabilities  $P(X = x, Y = y)$  for each pair  $(x, y)$  of values of  $X$  and  $Y$ . In some cases (e.g., Problems 2 and 4, or Examples 1a and 1b), this requires a separate computation for each case; in others (e.g., Problem 7), a single general argument may be enough. Problem 11 requires the multinomial distribution from Example 1f; note that the coefficient in front of the powers of  $p_i$ 's is a familiar expression from word counting problems.
- **Continuous joint distributions:** Most of the remaining problems are calculations involving continuous joint distributions. Those almost always require computing double integrals; review this material from your Calculus text if necessary. Examples of this type were worked in class on Friday (4/3) and Monday (4/6), and additional examples can be found in the Self-Test Problem Section (p. 323) (in particular problems 3–6 from that section).

### HW 8 Problems (Chapter 6, pp. 313–319)

1. #2(a) (omit (b))
2. #4(a) (omit (b))
3. #7
4. #8(a)(b)(c)
5. #9(a)–(f)
6. #11
7. #13
8. #18
9. #20(a)(b)
10. #22(a)(b)(c)
11. #23(a)–(e)