

Math 408, Spring 2008
HW Assignment 7, due Wednesday, 3/12/2008
(NOTE EARLY DEADLINE)

Name (print please):

Instructions

- **Use this sheet as cover sheet and staple it to the assignment.** Write your name **legibly** in the space above; if necessary, underline your last name. If your name is not clearly and unambiguously identifiable on the class roster, we cannot credit you for the homework.
- Do the problems in order, and make sure that each problem is clearly labelled.
- Show all work; an answer alone will not earn credit.
- **Due date:** The assignment is due **in class next Wednesday**; 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, any time before the due date.

HW 7 Problems (from Hogg/Tanis, 7th edition)

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|-----------|-----------|
| 1. 3.3-14 | 6. 3.5-8 |
| 2. 3.3-17 | 7. 3.6-11 |
| 3. 3.3-20 | 8. 3.6-12 |
| 4. 3.5-1 | 9. 3.6-14 |
| 5. 3.5-2 | |

***** Turn page for comments *****

Instructions/comments

1. **Problems 3.3-14.** This is an applied problem, taken from a past actuarial exam, involving the exponential distribution. The set-up should be routine, but the integral it leads to is slightly tricky (Hint: Write $2^{3-t} = e^{3 \ln 2} \cdot e^{-(\ln 2)t}$.)
2. **Problems 3.3-17.** This boils down to an exercise in computing integrals, using integration by part. Note that “*define* the distribution function” is to be interpreted as “*calculate* the distribution function”.
3. **Problems 3.3-20, 3.6-14, and 3.5-xxx:** All of these problems (including the first one) are exercises in “changing variables” in density functions. **Use the distribution function technique for all of these problems, as in the class examples.** While in some specialized situations one can get away with other approaches, the distribution function technique is the only method that works in all situations, so you need to practice this method.
4. **Problems 3.6-11 and 3.6-12:** These two problems do not require any of the theoretical material in this section, so you do not need to read this section for these problems. In fact, the problems are of the same type as some of the problems in Sections 3.2/3.3 (e.g., 3.2-23 and 3.3-14), and they could have been placed into the earlier sections. Though not couched in insurance language, these two problems are typical of insurance applications involving caps and deductibles.