IEOR 3106: Introduction to Operations Research: Stochastic Models

Fall 2012, Professor Whitt

Homework Assignment 10: Tuesday, November 20.

Due on Thursday, November 29. (so not to be due immediately after Thanksgiving)

Chapter 7: More Renewal Theory

In Ross, read Examples 7.15 and 7.16 in Section 7.4. Read Sections 7.5-7.7, skipping Examples 7.19 and 7.24. (The total required reading is approximately 12 pages.)

Key Concepts in this Part of the Assignment:

- renewal reward process (Section 7.4)
- age of a renewal process (Examples 7.15 and 7.22)
- excess of a renewal process (Examples 7.16 and 7.23)
- regenerative process (Section 7.5)
- alternating renewal process (Section 7.5.1)
- semi-Markov process (Section 7.6)
- the inspection paradox (Section 7.7)

Do the following exercises at the end of Chapter 7. You need not turn in the ones with answers at the back.

26. Hint: Look at Section 7.4.

31.

32.

38.

41. Hint: Look at Example 7.22 and the equilibrium distribution $F_e$, defined after Example 7.23 (also see the next exercise).

42. (answer in back)

49. (answer in back)

51. Hint: Look at Section 7.7.