Statistics 110 – Assignment 4

Due: Wednesday, July 26, 2006

1. Rice 3.46
2. Rice 3.54
3. Rice 3.55 (Hint: The lifetime of the system is the minimum lifetime of the n components.)
4. Rice 3.56
5. Rice 3.60
6. Rice 4.17
7. Rice 4.45
8. Rice 4.48
9. Rice 4.49
10. Rice 4.50
11. The random variables X and Y have a joint density function given by

$$f(x,y) = \frac{2e^{-2x}}{x}; \qquad 0 \le x, 0 \le y \le x$$

Compute $\mathrm{Cov}(X,Y)$.

(Hint 1: See if you can get the expectations you need without determining $f(y)$ explicitly.)

(Hint 2: What are the moments of the exponential distribution.)

Suggested additional problems from Rice (don't hand in)

3.48, 3.50, 3.59, 4.52, 4.53