

Homework 4

due: W Oct 22, 2025, 11:59 PM PST

Notes:

- “IP, Ch5” (Introduction to Probability, Statistics and Random Processes) refers to https://www.probability.com/chapter5/5_4_0_chapter_problems.php
- “ISLR2e” (An Introduction to Statistical Learning, 2nd edition) refers to the textbook found in <https://www.statlearning.com/> (click on the R version of the book.)

Problems

1. Let $U \sim \text{Unif}(0, 2)$ and $Y = e^{-U}$. Find the expected value EY .
2. Let $X \sim N(2, 9)$ and let F_X be the CDF of X .
 - (a) What is the value of $P(X > 2)$?
 - (b) Express $P(-3 < X < 9)$ in terms of the CDF, and use the R function `pnorm()` to compute the numerical value $P(-3 < X < 9)$.
3. Problem 1 from IP, Ch5.
4. Problem 5 from IP, Ch5.
5. Problem 26(a,b,c) from IP, Ch5. (No need to do part d.)
6. Section 2.4, Conceptual Problem 1 from ISLR2e.
7. Section 2.4, Conceptual Problem 2 from ISLR2e.