

S&DS 241/541  
Problem Set 7  
due Oct. 30, 2024, 9:00 pm via Gradescope

**Guidelines**

- Please write legibly and explain your reasoning. For full credit, your answer and your reasoning need to be not only correct, but clear to the grader.
- Late problem sets will not be accepted unless there are extenuating circumstances (e.g., an illness or family emergency). Undergraduates must obtain a Dean's excuse for any late submission. Graduate students must obtain permission before the deadline. (As mentioned in the syllabus, we'll drop your lowest homework score.)
- You're encouraged to discuss the homework with classmates (this can be a good way to learn), but you must write your solutions independently and in your own words.

**Problems**

1. Chapter 5, Exercise 17.
2. Chapter 5, Exercise 19.
3. Chapter 5, Exercise 22.
4. Chapter 5, Exercise 25.
5. Chapter 5, Exercise 45. Notes: It's OK to leave your result as a formula involving more than one number. Poisson processes and the "count-time duality" are discussed on pages 244–245 of section 5.6. I used the count-time duality (without calling it by that name) in my earthquake example on the slides.

6. On a separate page, please write your name and acknowledge anyone who helped you or discussed the problem set with you (other than the instructor, TFs, and ULAs), as well as any written resources you consulted (other than the textbook and other resources on Canvas). If you don't have any acknowledgments to make, please write "I worked independently."