

## STA 200A: Homework 6

NOTE: This assignment will not be collected for credit (in order to provide more time to study for the midterm). In any case, you should plan on solving these problems at some point. Solutions will be posted next week.

The “Problems” and “Theoretical Exercises” are listed in separate sections at the end of the chapter.

The problem numbers are based on the **9th edition**. (A copy of these problems is available on the course webpage under the folder ‘book problems’.) Below the notation 3.T11 means Chapter 3, Theoretical Exercise 11. Similarly, the notation 4.P21 means Chapter 4, Problem 21.

1. 5.T29
2. 6.P10
3. 6.P14
4. 6.P15
5. 6.P20
6. 6.P22
7. Monthly sales are independent normal random variables with mean 100 and standard deviation 5.
  - (a) Find the probability that exactly 3 of the next 6 months have sales greater than 100.
  - (b) Find the probability that the total of the sales in the next 4 months is greater than 420.
8. 6.T22
9. An insurance company supposes that each person has an “accident parameter”  $\lambda$ . The number of accidents that someone has each year is assumed to be a random variable with a  $\text{Poisson}(\lambda)$  distribution. The company also assumes that the  $\lambda$  value of a newly insured person can be treated as random, where  $\lambda$  follows a Gamma distribution with parameters  $s$  and  $\alpha$ . If a newly insured person has  $n$  accidents in her first year, find the conditional density of her accident parameter.