HW 11
STAT 346, Spring 2010

I’ll make each homework assignment worth 10 points, so that when I count your best 10 of 13 assignment scores, your overall homework score will be out of 100 points possible. For this assignment, three of the five problems to be turned in will be selected for grading. (Two of the graded problems will be worth 3 points apiece, and the other one will be worth 4 points. *I announced in class that Problem 4 will be considered to be an extra credit problem.* It won’t be one of the three selected for grading as part of the regular assignment. **You should work on this extra credit problem entirely on your own and not get assistance from anyone,** should you choose to try the problem.)

1) Consider Exercise 3 on p. 318 of the text and obtain $P(X + Y = 3)$.
2) Do Exercise 17 on p. 320 of the text. *(Note: For convenience, denote the product $XY$ by $V$.)*
3) Do Exercise 2 on p. 318 of the text. *(Be sure to justify your answer.)*
4) Consider independent random variables $X_1$ and $X_2$, each having pdf

$$f(x) = \frac{1}{x^2} I_{(1, \infty)}(x),$$

and obtain the density of $T = X_1 + X_2$.
5) Do Exercise 2 on p. 332 of the text.
6) Do Exercise 10 on p. 360 of the text. *(Hint: Use geometry instead of integration. (Look up formula for the volume of a sphere if you have to.))*
7) Do part (b) of Problem 4 on p. 373 of the text. *(Use the fact that $c = 1/2$ if you wish, although the value of $c$ cancels out and it’s really not needed.)*
8) Do part (a) of Problem 4 on p. 373 of the text.
9) Do Exercise 7 on p. 332 of the text.
10) Do Exercise 1 on p. 372 of the text.

*Turn in solutions for Problems 3 through 7, but not the others.*