APPM 3570: Homework Set 13

Due Wed. Apr. 25

1. Chapter 6 in Ross: Problems 52, 53, 54, 58; Theoretical Exercise 35

2. Chapter 7 in Ross: Problems 1, 4, 7, 9

3. The random variables X and Y are independent and identically distributed (iid) according to the uniform distribution on $(0, 1)$. Compute the joint density function of $U = X$ and $V = X/Y$.

   Extra Credit: Correctly complete this problem to add 5 points back to your score on Exam 2.

4. A random variable X has density function

$$f(x) = \begin{cases} c(x + x^2) & x \in [0, 1] \\ 0 & \text{otherwise} \end{cases}$$

   where c is a constant. Compute $E[1/X]$.