Homework 3

S320/520

Due at the beginning of class, Thursday 17th September

Please write "S320" or "S520" at the top of your homework. All students should answer all questions. Trosset question numbers refer to the hardcover textbook. Show all working.

1. Trosset exercise 4.5.10

2. Trosset exercise 4.5.13

3. Trosset exercise 5.6.2

4. Trosset exercise 5.6.3

5. Let X be a continuous random variable with probability density function (PDF)

$$f(x) = \begin{cases} 2k & 0 \leq x < 3 \\ 3k & 3 \leq x < 5 \\ 0 & \text{otherwise.} \end{cases}$$

where k is a constant.

   (a) Find k.
   (b) Find $F(4)$, the cumulative distribution function at $x = 4$.
   (c) Find the expected value of X.