Homework 10- Due Monday Nov. 22.

Do problems 4.1.5, 4.1.9, 4.1.10, 4.2.3 and 4.2.4 from Durrett, and the following

1. Let $X$ and $Y$ be independent exponential random variables. Determine $E[X^2|X + Y]$ and $E[XY|X + Y]$.

2. Let $X_1, \ldots, X_n$ be independent and identically distributed random variables with finite expectation. Determine $E[X_1|X_1 + \cdots + X_n]$.

3. Let $X$ and $Y$ be independent and identically distributed random variables. Let $\Delta = 1_{X \leq Y}$ and $Z = X \wedge Y$.
   Determine $E(h(X, Y)|\Delta, Z)$ for any $h$ such that $E[|h(X, Y)|] < \infty$. 