Homework 7, Sta 531 Fall 2008

Due 10/6

1. If X and Y are two independent r.v.s having $\exp(\lambda_1)$ and $\exp(\lambda_2)$ distributions, show that $Z = \min(X, Y)$ is also an exponential r.v. Identify the parameter of Z.
2. Problem 4.47
3. Suppose the joint density function of (X, Y) is given as in Example 4.1.12 (page 146)
   Find the two marginal densities, and the two conditional densities.
4. In the context above, find $E(X|Y)$ and verify $E[E(X|Y)] = E(X)$.
5. Let $U = Y - X; V = X$, where (X, Y) is given above, find the joint density of (U, V).