

Homework #2 (due September 20, 2012)

1. Let (X, Y) be a random vector uniformly distributed over the triangle bounded by $x = 0$, $y = 0$, $x + y \leq 1$.

(i) Find the marginal pdf's of X , Y , $X + Y$.

(ii) Calculate the correlation coefficient between X and Y .

(iii) Find the conditional distribution of X given $X + Y$.

2. Let X, Y be random variables. Show that if $E(|X|) < \infty$, then $E(|X||Y) \geq |E(X|Y)|$.

3. Problems 55, 59, 60, 91a from Ch. 1.