Homework 11 (additional problems)
Introduction to Probability - MATH/STATS 425, Winter 2012

1. Random variables X and Y are jointly distributed according to the joint pdf

$$f(x,y) = \begin{cases} k\sin(x+y) & \text{for } 0 \le x \le \pi/2,\ 0 \le y \le \pi/2 \\ 0 & \text{eslewhere.} \end{cases}$$

(a) Find the coefficient k.

(b) Find the marginal pdf's of X and Y.

(c) Find the conditional pdf of X given $Y = y$.

(d) Find the expected value of X.

(e) Find the conditional expectation of X given $Y = y$.