1. Consider the joint pmf p(x,y)=cxy, 1<x<y<3.
2. Find the normalizing constant c.
3. Are X and Y independent? Prove your claim.
4. Find the expectations of X, Y, XY.
5. Conceptual

Suppose (X, Y) have the joint pmf p(x, x+1) = 1/(n+1), x= 0,1,2,…..,n.

1. Are X, Y independent?
2. What is E( YlX = x)?
3. What is Var( YlX=x)?
4. What is Var(X)?
5. What is Var(Y-X)?
6. X, Y are jointly distributed Uniformly within the Unit circle. What is, the joint PDF is

f(x,y) = c, if X2+Y2 < 1

=0, otherwise.

1. Are X,Y independent?
2. Find the marginal PDF of X.
3. Find E(X).
4. Find E(Y).
5. Find E(X-Y).
6. Find Var(X-Y).
7. (expectation of a Quotient) suppose X and Y are independent and X~Be(2,2), Y~Be(3,3). Find E(X2/Y2).