

Quiz # 1

Stat 3445, Due Feb 1

Name:

1. The joint distribution of random variables X and Y is given by the following table.

		X		
		1	2	3
Y	-1	0	.1	.1
	0	0	.5	.1
	1	.2	0	0

- (a) Find $E(X)$, $E(Y)$, $Var(X)$, and $Var(Y)$.
 (b) Find $E(XY)$, $Cov(X, Y)$, and $\rho(X, Y)$.

2. The joint density function of X_1 and X_2 is given by

$$f(x_1, x_2) = \begin{cases} 6x_2, & \text{if } 0 \leq x_2 \leq x_1 \leq 1, \\ 0, & \text{otherwise} \end{cases}$$

- (a) Find marginal pdfs of X_1 and X_2 .
- (b) Find the means and variances of X_1 and X_2 .
- (c) Find the covariance of X_1 and X_2 .
- (d) Find the mean and variance of $X_1 - 2X_2$.