Department of Computer Science and Engineering CSE 21
University of California at San Diego Spring 97

Sample Quiz 5

1. A coin is weighted so that heads is three times as likely to appear as tails. The coin is tossed 5 times. Let X denote the length of the string of heads starting in the first toss.
   Find the **(a)** distribution of X **(b)** mean of X **(c)** variance of X **(d)** standard deviation of X

2. Consider the following joint distribution of X and Y and find:
   (a) E(X) and E(Y) **(b)** Cov(X,Y) **(c)** σ_{X}, σ_{Y}, $\rho(X, Y)$.
   (d) Are X and Y are independent random variables? Defend your answer.

X Y	1	2	
-2	0.3	0.1	
1	0	0.1	
3	0.1	0.2	
4	0.2	0	

3. A player tosses a pair of fair dice. Depending upon the sum of the toss, the player wins money. If the sum is 8 or higher, he wins \$8; exactly 7, he wins \$5; exactly 2, he wins \$4; other sums, he wins \$1. If the game is to be fair, how much should he pay to play the game? Round your answer to the nearest cent.