

Homework 9

Do the problems on webwork and turn the following problems in class on Nov. 12th.

Homework should be written neatly and clearly explained. If it requires more than one sheet, the sheets must be stapled. Include your name and id number in the top right corner of your homework.

Problem 1. In a certain soccer tournament you play 4 games. In every match you get 4 points if you win, 1 point for a draw and 0 points if you lose. For each match the probability you win is 0.5, the probability you draw is 0.1 and the probability you lose is 0.4, independently of the results of all other matches. Let P be the number of points you get.

- (a) What is $\mathbb{E}[P]$?
- (b) What is $\text{Var}[P]$?

Problem 2. Let X and Y have joint pdf:

$$f_{X,Y}(x,y) = \begin{cases} e^{-y} & \text{if } 0 \leq x \leq y \\ 0 & \text{otherwise} \end{cases}$$

[Note y can be arbitrarily large]

- (a) Compute $f_X(x)$ and $f_Y(y)$.
- (b) Compute $\text{Cov}(X, Y)$.

Be sure to write the domain of your pdf's.