

Homework 9

Do the problems on webwork and turn the following problems in class on April 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. You flip a biased coin 20 times, independently. The coin has probability p of being a heads. Let X be the number of heads in the first 10 coin flips and Y be the total number of heads in all 20 coin flips.

Compute $\text{Cov}(X, Y)$ and their correlation ρ .

Problem 2. In a football tournament you play each of the other ten teams once. In every match you get 3 points if you win, 1 point for a draw and 0 points if you lose. For each match the probability you win is 0.6, the probability you draw is 0.1 and the probability you lose is 0.3, independently of the results of all other matches. What is the probability you finish the tournament with at least 26 points?