

Homework 9: Due Monday, April 27

Each of the following problems asks you to calculate an expected value. For each, work from the definition of the expected value and evaluate your expression fully to obtain a number. These problems are admittedly a little annoying to work out carefully by hand, but it will make you appreciate the theorems that we will prove soon!

Problem 1: Suppose that you roll a fair 4-sided die (with faces labeled 1,2,3,4) three times. What is the expected value of the sum of the three die rolls?

Problem 2: Suppose that you draw 5 cards from a 52 card deck at random. What is the expected value of the number of hearts?

Problem 3: As in the hat-check problem, suppose that you randomly distribute the hats of 5 people amongst the 5 people. What is the expected value of the number of people who receive their own hat?