

Homework 1: Due Wednesday, April 9

Section 1.2: #22, 26, 28

Section 3.1: #6, 12, 14, 23

Problem: We argued in class that the “right” model for rolling two fair dice is to use the uniform distribution on the sample space consisting of all ordered pairs (i, j) where $1 \leq i, j \leq 6$. That is, each of the 36 pairs (i, j) with $1 \leq i, j \leq n$ has $m(i, j) = \frac{1}{36}$.

Suppose instead that you used the uniform distribution on the sample space of all ordered pairs (i, j) where $1 \leq i \leq j \leq 6$. That is, each of the 21 pairs (i, j) with $1 \leq i \leq j \leq n$ has $m(i, j) = \frac{1}{21}$. Suppose that you play craps, but instead of using a pair of fair dice, you instead convince the casino that you can use a fair 21-sided “die” with each of the above ordered pairs appearing as a face. Calculate the probability of the Pass Line bet winning and the Don’t Pass Line bet winning in this scenario.