

4. Suppose B and C are iid $\text{Unif}[0, 1]$. Find the probability that the roots of the equation $x^2 + Bx + C = 0$ are real.

5. Alina makes 100 flips of a fair coin, and Dennis makes 99 flips of a fair coin. What is the probability that Alina gets *more* heads than Dennis?

Hint: Try smaller numbers. Or simulate.

6. X and Y are iid $\text{Unif}[0, 1]$. What is the probability that the closest integer to $\frac{X}{Y}$ is even?

Hint: What is the probability that the closest integer is 0? Or 2? Or 4? Generalize.