HW 6

Problem 1 (8.31)   Anne spins a (fair) coin three times and observes no heads. She givens the coin to Noha who decides to spin the coin until a heads occurs. Noha spins the coin a total of four times. Let θ be the probability the coin comes up heads.

(a) What is the likelihood of θ?

(b) What is the MLE for θ?

Problem 2 (8.52)   Let $X_1, \ldots, X_n$ be IID RVs with density

$$f(x; \theta) = (\theta + 1)x^\theta \mathbb{I}\{0 \le x \le 1\}.$$

Find the method of moments estimate of θ.

Problem 3 (8.52)   As in the previous problem, let $X_1, \ldots, X_n$ be IID RVs with density

$$f(x; \theta) = (\theta + 1)x^\theta \mathbb{I}\{0 \le x \le 1\}.$$

Find the maximum likelihood estimate of θ.