第 7 讲: 离散概率基础

姓名: ＿   **学号:** ＿

评分: ＿＿＿＿   **评阅:** ＿＿＿＿

2022 年 3 月 30 日

1　作业 (必做部分)

题目 1 (CS 5.1-10)

解答:

题目 2 (CS 5.1-12)

解答:

题目 3 (CS 5.2-4)

解答:

题目 4 (CS 5.2-10)

解答:

题目 5 (CS 5.3-2)

解答:

题目 6 (CS 5.3-12)

解答:

题目 7 (CS 5.4-10)

解答:

题目 8 (CS 5.4-15)

解答:

2　作业 (选做部分)

题目 1 (The Ballot Problem)
In an election, candidate A receives n votes, and candidate B receives m votes where $n > m$. Assuming that all orderings are equally likely, what is the probability that A is always ahead in the count of votes?

解答:

3　Open Topics

Open Topics 1 (Monty Hall Problem)
请介绍 Monty Hall Problem, 尽量讲清楚各种版本背后的概率解释。
参考资料:

- Monty Hall problem @ wiki

- "21" Movie @ Youtube

Open Topics 2 (Shuffling Cards)

请参考下列资料介绍 "洗牌" 中的数学。(不必追求严格推导, 主要介绍基本思想。)

　　"How often does one have to shuffle a deck of cards until it is random?"

参考资料:

- Section "Top-in-at-random shuffles" of Chapter 30 of Book: "Proofs from THE BOOK" (见课程网站)

4　反馈