

Stat 134: Section 1

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WELCOME TO STAT 134! This discussion section will complement the main lecture by providing you with helpful problems to work on and with a hopefully-helpful hand to guide you through them (me!).

Problem 1

Suppose a word is picked at random from this sentence.

- a. What is the distribution of the length of the word picked?
- b. What is the distribution of the number of vowels in the word?

What does a probability distribution consist of? What conditions must it satisfy?

Ex 1.3.6 in Pitman's Probability

Problem 2

Suppose n ordinary dice are rolled.

- a. What is the chance the dice show n different faces?
- b. What is the chance that at least one number appears more than once?

Ex 1.R.12 in Pitman's Probability

*Problem 3**The Gambler's Rule*

Suppose you play a game over and over again, each time with chance $1/N$ of winning the game, no matter what the results of the previous games. What is the probability of you winning at least one game in the n games?

Hint: Without a computer, this is very difficult to compute directly. Can you find an approximate answer?

Adapted from Example 3 of Section 1.6 in Pitman's Probability (Pg 60)

Problem 4

Cards are dealt from a well-shuffled standard deck until the first heart appears.

- a. What is the probability that exactly 5 deals are required?
- b. What is the probability that 5 or fewer deals are required?

Try doing part b. without using a summation term.

Ex 1.R.8. in Pitman's Probability