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?

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