Quiz 14 : Geometric, Poisson

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This quiz does not count towards your grade. It exists to simply gauge your understanding. Treat this as though it were a portion of your midterm or final exam.

1   Distributions

Alvin has trouble typing his 9-character alphanumeric password into his computer correctly. Assume that he types all 9 characters before hitting enter and typing a single character is independent of typing any other character.

1. If Alvin takes on average b times to enter his password in, what is the probability p that he hits a key incorrectly?

2. Alvin has mis-typed his password t times. What is the probability that Alvin takes v more tries before he can unlock his computer? Express in terms of v and b.

3. If Alvin writes an essay with dozens of pages, where each word is exactly 9 letters, with what probability will he mis-type none of his words? Let there be 500 words per page, and express in terms of b.

4. Considering all possible values of b, is it possible for him to type a perfect essay with complete certainty? (probability of 0 typos with 100% certainty) Assume that Alvin *never* types in his password correctly on the first try.