Suppose you are required to guess the value of a discrete random variable X, of a known PMF, via a sequence of questions of the form "is $X = x$?".

- What questioning strategy is optimal in the sense of minimizing the expected number of trials until guessing correctly?
- What is the value of this minimum expected number of guesses until correctly guessing (inclusive) for $X \sim \text{Poisson}(1)$?
- Repeat the question for $X \sim \text{Poisson}(2)$.