

Quiz 21 : Continuous Probability

written by Alvin Wan . alvinwan.com/cs70 . Monday, November 21, 2016

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 Lightbulbs

Consider n lightbulbs, where the lifetime of each is exponentially distributed with parameter λ .

Hint: Let X_i denote the lifetime of the i th lightbulb. We know that $X_i \sim \text{EXPO}(\lambda)$.

1. If we use one lightbulb at a time, how long will it take to use all light bulbs?
2. How much time can we expect until the first lightbulb burns out?
3. How much time can we expect until the i th lightbulb burns out?