Stat 134: Section 15

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Conceptual Review

a. What are the different functions we have used to characterize (i.e., fully describe) distributions of random variables?

b. What is an order statistics? What is a general strategy to find the distribution of $X_{(1)}, X_{(n)}$

Problem 1

Suppose we have a random variable X with continuous and strictly increasing CDF F_X. Find the distribution of $F_X(X)$.

Problem 2

Let $X_1, \ldots, X_n$ be independent random variables where $X_i \sim Exp(\lambda_i)$ for $i = 1, 2, \ldots, n$. Find the density of $Y = \min\{X_1, \ldots, X_n\}$ and $Z = \max\{X_1, \ldots, X_n\}$.