

## *Stat 134: Section 13*

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