EE 497B

Probability and Random Processes for Electrical Engineers

Lecture 15

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Lecture 15 Topics

- Properties of Discrete Random Variables
  - Cumulative Distribution Function (CDF)
- CDF Properties
- Continuous Random Variable
  - Cumulative Distribution Function (CDF)

Example 1

- A finite discrete random variable Y with range

$$S_Y = \{1, 2, 3, \ldots, n\}$$

- The PMF of the random variable Y is

$$P_Y(y) = P[Y = y] = \begin{cases} \frac{1}{n} & y = 1, 2, \ldots, n \\ 0 & \text{otherwise} \end{cases}$$

- Sketch the PMF

- Determine and sketch the CDF

$$F_Y(y) = P[Y \le y] = \sum_{y_j \in S_Y | y_j \le y} P_Y(y_j)$$