

STAT 270 Lecture 13
Fall 2015
7 October 2015

- We finished slide 16 of ‘Discrete Distributions’.
- In the text we have just started 4.2.
- Problems from text: 4.02, 4.05, 4.06, 4.08, 4.26b, 4.33, 4.39.
- Handwritten slides.
- Key jargon, ideas:

– I defined the *cumulative distribution function* (cdf) of a random variable X and focused on discrete X .

– I presented the basic properties of a cdf F :

1. For all x

$$0 \leq F(x) \leq 1.$$

2. $F(x)$ is a non-decreasing function of x .

3. F is right continuous and has left limits.

4. We have the limits

$$\lim_{x \rightarrow -\infty} F(x) = 0$$

and

$$\lim_{x \rightarrow \infty} F(x) = 1.$$

– For discrete X the cdf jumps up by $p(x)$ at each x which is a possible value of X .

– I defined expected value for a discrete random variable X using *two* possible notations:

$$E(X)$$

and

$$\mu_X.$$

– Both notations are, for discrete X ,

$$E(X) = \mu_X = \sum_x x \cdot p(x).$$