

## Lecture 14: Sept 23

Last time

- Transformations of continuous random variables

Today

- Practice examples

**Example** A random variable  $X$  has a discrete uniform  $(1, N)$  distribution,  $X \sim Unif\{1, N\}$ , if

$$\Pr(X = x|N) = \frac{1}{N}, \quad x = 1, 2, \dots, N,$$

where  $N$  is a specified integer. This distribution puts equal mass on each of the outcomes  $1, 2, \dots, N$ . Question: what is the cdf of this r.v.?

*Solutions:*

**Example** The continuous uniform distribution is defined by spreading mass uniformly over an interval  $[a, b]$ . A random variable  $X$  has a continuous uniform  $[a, b]$  distribution,  $X \sim Unif(a, b)$ , if its pdf is given by

$$f(x|a, b) = \begin{cases} \frac{1}{b-a} & \text{if } x \in [a, b] \\ 0 & \text{otherwise.} \end{cases}$$

Question: what is the cdf?

*Solutions:*