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## Discrete

random variable

## Continuous

- Bernoulli - success/fail
- Binomial - # of success in a series of Bernoulli trials fixed #
- Negative Bin. - # of trials need to observe a fixed # of successes
- Geometric - # trials needed to observe our 1<sup>st</sup> success
- Poisson - # of success / arrivals / hrs in a fixed time interval
  - ↳ exponential - the continuous of time in between

$X$  = # ppl who arrive in csel of OH

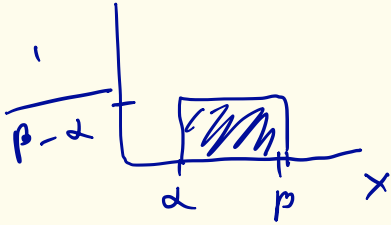
$\sim \text{POB}(\lambda = 5 \text{ ppl/hour})$

$T$  = amount time in b/w arrivals of ppl in csel

$\sim \text{Exp}(\lambda = 5 \text{ ppl/hour})$

continuous

• uniform  $x \sim U(a, b)$



Neg. Binomial

n trials (r.v.)

k successes

last (k<sup>th</sup>) trial was a success  $\rightarrow \binom{n-1}{k-1} p^k (1-p)^{n-k}$

discrete: PMF,  $f(x)$ :  $\sum_i f(a_i) = 1$  &  $f(a_i) \geq 0$

continuous: PDF,  $f(x)$ :  $\int_{-\infty}^{\infty} f(x) dx = 1$  &  $f(x) \geq 0$

