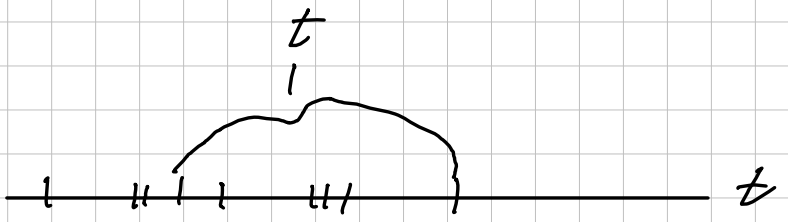
Eksponential fordeling

ventetid til neste poisson hendelse i en poisson proces.



poisson ankomst proces

ankomstintensitet λ [6]

$$P(X \text{ ankomst i } [0,t]) = \frac{(\lambda t)^x}{x!} \cdot e^{-\lambda t}, \quad x = 0, 1, \ldots$$

exppdf, expcdf

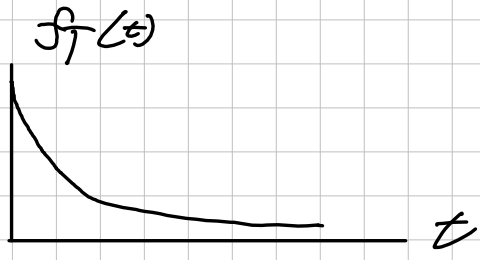
ventetid

$$T \sim Exp(\lambda), \quad \lambda [s^{-1}]$$

$$P(T \geq t) = P(0 \text{ ankomst i } [0,t]) = e^{-\lambda t}$$

$$F_T(t) = P(T \leq t) = 1 - P(T \geq t) = 1 - e^{-\lambda t} \leftarrow \text{cdf}$$

$$f_T(t) = \frac{dF_T(t)}{dt} = \lambda \cdot e^{-\lambda t}, \quad t \geq 0$$



↑
pdf