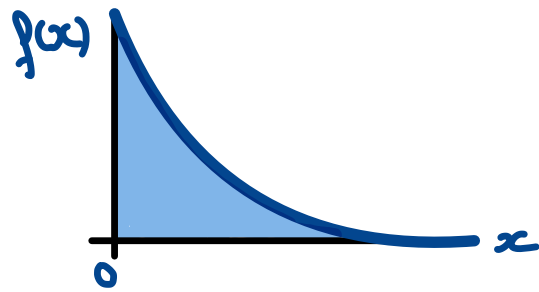


$$f(x) = \begin{cases} \lambda e^{-\lambda x}, & x \geq 0; \lambda > 0 \\ 0 & \text{otherwise} \end{cases}$$



$$F(x) = \int_0^x \lambda e^{-\lambda t} dt = -\cancel{\lambda} \frac{e^{-\lambda t}}{\cancel{\lambda}} \Big|_0^x = -e^{-\lambda x} - (-1) \Rightarrow F(x) = 1 - e^{-\lambda x}$$

Now put the  $x$  in function of  $y$ :

$$y = 1 - e^{-\lambda x}$$

$$e^{-\lambda x} = 1 - y$$

$$-\lambda x = \ln(1 - y)$$

$$x = -\frac{1}{\lambda} \ln(1 - y)$$