

Solution for exercise 4.5.1 in Pitman

Question a) The survival function of the exponential distribution is - page 279 -

$$P(T > t) = e^{-\lambda t}$$

thus the cumulative distribution function $F(t)$ is

$$F(t) = P(T \leq t) = 1 - P(T > t) = 1 - e^{-\lambda t}$$