

PROBLEMS 6b. 31.10.2018

Q1. *Renewal function of the exponential law.*

For the exponential law $E(\lambda)$ with parameter $\lambda > 0$ (density $f(x) = \lambda e^{-\lambda x}$ for $x > 0$, 0 otherwise), show that the renewal function is

$$U(x) = 1 + \lambda x.$$

Interpret the two terms in this result.

Q2. *Renewal theorem for the exponential law.*

Show that Q1 agrees with the renewal theorem, Blackwell's renewal theorem and the key renewal theorem in this case.

NHB