RANDOM VARIABLE GENERATION EXERCISES

Exercise 11/12 The Poisson distribution $\mathcal{P}(\lambda)$ is connected to the exponential distribution through the Poisson process in that it can be simulated by generating exponential random variables until their sum exceeds 1. That is, if $X_i \sim \mathcal{E}xp(\lambda)$ and if K is the first value for which $\sum_{i=1}^{K+1} X_i > 1$, then $K \sim \mathcal{P}(\lambda)$. Compare this algorithm with `rpois` and the algorithm of Example 2.5 for both small and large values of λ.