11th exercises for SIM'2021

Ex. 1
'Show' numerically that the posterior distribution could be Gamma when the data follows exponential distribution and the prior distribution for the intensity parameter λ in exponential distribution is Gamma$(a,a/b)$ (see Ex. 8.1). The exponential data is $\boldsymbol{x} = (0.254, 0.360, 0.0372, 0.340, 0.252, 0.105, 0.111, 0.222, 0.162, 0.0307)$ and the hyperparameters are $a = 3, b = 3$. 'Show' the posterior using random walk Metropolis-Hastings, and plotting the histogram of the chain.