Quiz #13

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Simulations

Problem 1. (15 points)

Consider the following two-step experiment. First you draw a the value of the mixing parameter Λ from a uniform distribution on $[0, 20]$. Then, you draw the simulated value from an exponential distribution with mean Λ.

(7 points) Repeat the above two-step experiment 10000 times and draw the histogram of the simulated values.

(2 points) Find the theoretical mean of the above distribution and compare it to the mean of the simulated values.

(6 points) Find the theoretical variance of the above distribution and compare it to the variance of the simulated values.