Question 1

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# Part C

set.seed(8675309)  
  
rand <- rexp(100000, 3)  
rand.mean <- mean(rand)  
rand.var <- var(rand)  
rand.mean

## [1] 0.3350221

rand.var

## [1] 0.1121182

The simulated values are very close to the calculated expectations for mean and varicance from parts A and B.

# Part D

The expected wait time does not change from part A, based on a time parameter (t) when using the exponential distribution. Mathematically there is no time parameter for expectations when values are distributed exponentially.