

Let $X \sim \text{Gamma}(3/2, 1)$. Construct an accept-reject algorithm for X based on an $\text{Exp}(\beta)$ candidate. Will any $\beta > 0$ work? Which value of β leads to the most efficient algorithm? Is it as efficient as the algorithm that we developed in class?

Write a computer program that implements the accept-reject algorithm that we developed in class. Use it to make 10,000 iid draws and use these to construct an estimate of the mean of X (which of course is known to be $3/2$). Provide a corresponding asymptotic 95% confidence interval for your estimate of the mean. Does it contain the true value? Turn in your code, your estimate and your confidence interval.