STAT 345
Spring 2018
Quiz 3

Name (Print): _____

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1. $X_1, X_2, \cdots X_n$ are iid with the following probability density function.

$$f(x_i|\theta) = \begin{cases} \frac{3}{\theta}e^{-3x_i/\theta}, & x_i > 0 \\ 0, & otherwise \end{cases}$$

a) Find the expected value of the X_i.

b) Set $\mu = E(X)$. If $n = 30$, $\bar{X} = 3.1$ and $S^2 = 9.4$, find a 95% confidence interval for μ (using t-procedures).

c) Convert your interval for μ to an interval for θ. Hint: Write out your interval $P(L \leq \mu \leq R)$ and then substitute $\mu = E(X)$ which should be a function of θ. Now solve the inequality for θ.