HW 15

For Problems 1-2, let $X_1, \ldots, X_n$ be IID RVs from a double exponential distribution with density $f(x;\lambda) = \frac{1}{2}\lambda \exp\{-\lambda \mid x \mid\}$.

Problem 1 (9.18) Derive a likelihood ratio test of the hypothesis $H_0 : \lambda = \lambda_0$ vs $H_A : \lambda = \lambda_1$ where λ_0 and $\lambda_1 > \lambda_0$ are specified numbers.

Problem 2 (9.18) Is the test derived in Problem 1 uniformly most powerful against the alternative $H_A : \lambda > \lambda_0$? Why or why not?

Problem 3 (9.23) Suppose that a 99% CI for the mean, μ, of a normal distribution is found to be $(-2.0, 3.0)$. Would a test of $H_0 : \mu = -3$ vs $H_A : \mu \neq -3$ be rejected at the 0.01 significance level?