1. Let $X \sim Geo(p)$. Derive a likelihood ratio test of hypothesis $H_0 : p = 1/2$ versus $H_1 : p = 1/3$.

2. Let $X_1, \ldots, X_n$ be i.i.d. random variables from a double exponential distribution with density $f(x) = \frac{1}{2}\lambda \exp(-\lambda|x|)$. Derive a likelihood ratio test of hypothesis $H_0 : \lambda = \lambda_0$ versus $H_1 : \lambda = \lambda_1$, where $\lambda_1 > \lambda_0$.