# HW 13

For Problems 1-3, let $X_1, \ldots, X_n$ be a random sample from a Poisson($\lambda$) distribution.

**Problem 1 (9.7)** Find the likelihood ratio for testing $H_0 : \lambda = \lambda_0$ vs $H_A : \lambda = \lambda_1$ where $\lambda_1 > \lambda_0$.

**Problem 2 (9.7)** Use the fact that the sum of independent Poisson RVs follows a Poisson distribution to explain how to determine a rejection region for a test at level $\alpha$.

**Problem 3 (9.8)** Show that the test in the previous problems is uniformly most powerful for testing $H_0 : \lambda = \lambda_0$ vs $H_A : \lambda > \lambda_0$.