Stat 2630: Homework 12

1. Suppose that $X_1, \ldots, X_{20}$ is a random sample from Poisson with mean 8, and $Y_1, \ldots, Y_{20}$ is a random sample from Poisson with mean 10.

    (a) Simulate the probability that the size .05 two-tailed pooled t-test rejects $H_0 : \mu_1 = \mu_2$.

    (b) Simulate the probability that the size .05 two-tailed Welch t-test rejects $H_0 : \mu_1 = \mu_2$.

2. Suppose that $X_1, \ldots, X_{20}$ is a random sample from Poisson with mean 8, and $Y_1, \ldots, Y_{20}$ is a random sample from Poisson with mean θ.

    (a) Plot the simulated probability that the size .05 two-tailed pooled t-test rejects $H_0 : \mu_1 = \mu_2$, using values of θ increasingly farther from 8.

    (b) Overlay the simulated probability that the size .05 two-tailed Welch t-test rejects $H_0 : \mu_1 = \mu_2$