Worksheet 06

1. Consider a random sample $X_1, \ldots, X_n \sim N(\mu_X, \sigma_X^2)$. Write a test statistic to test the null hypothesis that $H_0 : \sigma^2 = 4$. Write down the exact form of the rejection region for a confidence level $(1 - \alpha)$.

2. Consider a two-sample design with the notation in Handout 5, with the assumption of normality and equal variances. Write a test statistic to test the null hypothesis that $H_0 : \mu_X - \mu_Y = 0$. Write down the exact form of the rejection region for a confidence level $(1 - \alpha)$.

3. Consider a two-sample design with the notation in Handout 5, with the assumption of normality. Write a test statistic to test the null hypothesis that $H_0 : \sigma_X^2 = \sigma_Y^2$. Write down the exact form of the rejection region for a confidence level $(1 - \alpha)$.