

## Worksheet 06

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