

Mgmt 230: Introductory Statistics
In-class Exercise: Describing Data

Work in groups of up to four people and conduct the hypothesis tests on the following pages. For each problem, conduct every step of a hypothesis test, and compute and interpret the p-value. Every time you use a formula, write the formula first, then the formula with the numbers plugged in.

By signing below, you agree that the following work represents the efforts of everyone in the group, and you are willing to accept as your own grade for the group project the grade earned from representation of your group's work. Every member must agree to these terms to earn a non-zero grade for this assignment.

_____ Signature Group Member 1	_____ Print Name	_____ Date
_____ Signature Group Member 2	_____ Print Name	_____ Date
_____ Signature Group Member 3	_____ Print Name	_____ Date
_____ Signature Group Member 4	_____ Print Name	_____ Date

1. A city planner is interested in whether it should make renovations to a parking garage or tear down the garage and sell the property. The planner determined that the garage will be profitable if it can collect an average of \$126 in revenues per weekday from fees. A random sample of 44 recent weekdays yielded an average revenue of \$130. Suppose it is known that the population standard deviation is \$15. At the 1% significance level, is there evidence the parking garage will be profitable?

2. Last year was one of the worst years for the housing market. Suppose the national average loss in home values is \$10,000. Suppose a city is contemplating changing property tax laws if there is statistical evidence that the average loss in housing value in the city is higher than the national average. The city collects data on 36 homes in the city and finds an average loss of \$11,650. Suppose the population standard deviation is equal to \$1,500. At the 5% significance level, is there evidence that homes in this city have lost more value than the national average?

3. States rely on estimates of tax revenue to make decisions about funding for education, public safety, and other programs. Many states suspect that sales tax revenue will be lower in 2009 due to an economic recession, and if this is true, this has negative consequences for many state budgets. To determine if tax revenues will be lower, the state collected a sample of the change from the previous year in sales tax revenue from 50 retailers. Suppose the average change in the sample was $-\$2035$ (the negative implies a decrease in tax revenues), and the population standard deviation is $\$10,250$. At the 5% significance level, is there statistical evidence that sales tax revenue will be lower in 2009?