6. Last Digits of Heights Example 1 in this section involved an analysis of the last digits of weights from a random sample of 100 Californians. Using those same subjects, the last digits of their heights are listed in the table below (based on data from the California Department of Public Health). Use a 0.05 significance level to test the claim that the sample is from a population of heights in which the last digits do *not* occur with the same frequency. The accompanying Minitab display results from the data in the table.

Last Digit	0	1	2	3	4	5	6	7	8	9
Frequency	12	8	14	9	11	9	13	8	11	5

MINITAB

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  N  DF  Chi-Sq  P-Value
100   9     6.6    0.679
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7. Testing a Slot Machine The author purchased a slot machine (Bally Model 809) and tested it by playing it 1197 times. There are 10 different categories of outcomes, including no win, win jackpot, win with three bells, and so on. When testing the claim that the observed outcomes agree with the expected frequencies, the author obtained a test statistic of $\chi^2 = 8.185$. Use a 0.05 significance level to test the claim that the actual outcomes agree with the expected frequencies. Does the slot machine appear to be functioning as expected?

8. Flat Tire and Missed Class A classic story involves four carpooling students who missed a test and gave as an excuse a flat tire. On the makeup test, the instructor asked the students to identify the particular tire that went flat. If they really didn't have a flat tire, would they be able to identify the same tire? The author asked 41 other students to identify the tire they would select. The results are listed in the following table (except for one student who selected the spare). Use a 0.05 significance level to test the author's claim that the results fit a uniform distribution. What does the result suggest about the ability of the four students to select the same tire when they really didn't have a flat?

Tire	Left Front	Right Front	Left Rear	Right Rear
Number Selected	11	15	8	6

9. NYC Homicides For a recent year, the following are the numbers of homicides that occurred each month in New York City: 38, 30, 46, 40, 46, 49, 47, 50, 50, 42, 37, 37. Use a 0.05 significance level to test the claim that homicides in New York City are equally likely for each of the 12 months. Is there sufficient evidence to support the police commissioner's claim that homicides occur more often in the summer when the weather is better?

10. Baseball Player Births In his book *Outliers,* author Malcolm Gladwell argues that more baseball players have birthdates in the months immediately following July 31, because that was the cutoff date for nonschool baseball leagues. Here is a sample of frequency counts of months of birthdates of American-born major league baseball players starting with January: 387, 329, 366, 344, 336, 313, 313, 503, 421, 434, 398, 371. Using a 0.05 significance level, is there sufficient evidence to warrant rejection of the claim that American-born major league baseball players are born in different months with the same frequency? Do the sample values appear to support Gladwell's claim?

11. Loaded Die The author drilled a hole in a die and filled it with a lead weight, then proceeded to roll it 200 times. Here are the observed frequencies for the outcomes of 1, 2, 3, 4, 5, and 6, respectively: 27, 31, 42, 40, 28, 32. Use a 0.05 significance level to test the claim that the outcomes are not equally likely. Does it appear that the loaded die behaves differently than a fair die?

12. Births Records of randomly selected births were obtained and categorized according to the day of the week that they occurred (based on data from the National Center for Health Statistics). Because babies are unfamiliar with our schedule of weekdays, a reasonable claim is that births occur on the different days with equal frequency. See the table that follows. Use a 0.01 significance level to test that claim. Can you provide an explanation for the result?