Chapter 14: Inference for Distributions of Categorical Variables: Chi-Square Procedures

Key Vocabulary:
- chi-square test for goodness of fit
- segmented bar chart
- chi-square statistic
- expected count
- observed count
- degrees of freedom
- chi-square distribution
- components of chi-square
- cell counts
- r x c table
- cell

Calculator Skills:
- sum ( )
- $\chi^2$cdf (leftbound, rightbound, df)
- $\chi^2$pdf (X, df)
- Shade $\chi^2$ (leftbound, rightbound, df)
- $\chi^2$-Test

14.1 Test for Goodness of Fit (pp.834-848)

1. What does the term expected count mean, and how is it calculated?

2. What is the chi-square statistic?

3. What is the difference between the notation $X^2$ and $\chi^2$?

4. How many degrees of freedom does the chi-square distribution have?
5. State the general form for the null hypotheses for a $\chi^2$ goodness of fit test.

6. State the general form for the alternative hypotheses for a $\chi^2$ goodness of fit test.

7. What conditions must be met in order to use the goodness of fit test?

8. What is the shape of a chi-square distribution? What happens to the shape as the degrees of freedom increases? (Illustrate with a diagram)

9. What is meant by a component of chi-square?

10. What does the largest component of chi-square signify?

11. Why is it necessary to perform follow-up analysis to a chi-square test?
14.2 Inference for Two-Way Tables (pp.849-885)

1. What information is contained in a two-way table for a chi-square test?

2. State the null and alternative hypotheses for comparing more than two population proportions.

3. How do you calculate the expected count in any cell of a two-way table assuming the null hypothesis is true?

4. How many degrees of freedom does a chi-square test for a two-way table with r rows and c columns have?

5. What requirements must be checked before carrying out a Chi-square test?

6. Summarize how to carry out a Chi-square Test for Homogeneity of Populations:
7. State the null and alternative hypotheses for a Chi-square test for Association/Independence.

8. Summarize how to carry out a Chi-square Test for Association/Independence: