Chapter 20: Testing Hypotheses About Proportions

Key Vocabulary:
- hypothesis
- null hypothesis
- reject (the null hypothesis)
- fail to reject (the null hypothesis)
- alternative hypothesis

Calculator Skills:
- 1-Prop ZTest

1. According to Webster’s, what is a hypothesis?

2. After analyzing a set of data, if the results support a hypothesis, does that prove the hypothesis is true? Explain.

3. After analyzing a set of data, if the results are inconsistent with a hypothesis, does that prove the hypothesis is false? Explain.

4. When do we reject a hypothesis?

5. When testing hypotheses, always start by assuming that the null hypothesis is true. What is meant by a null hypothesis?
6. Given a null hypothesis \( H_0 : p = p_0 \), what are the parameters of the Normal sampling distribution model? Under what conditions is this model appropriate?

7. How would you determine whether a particular value of \( \hat{p} \) is so unlikely to have occurred (assuming \( p = p_0 \)) that you would reject the null hypothesis? In other words, what would constitute “reasonable doubt”, in your opinion?

8. Why do we say we “fail to reject” the null hypothesis rather than “accept” the null hypothesis?

9. What is meant by an alternative hypothesis?

10. What is meant by a P-value?

11. Explain the difference between a two-sided alternative hypothesis and a one-sided alternative hypothesis. Draw a sketch.

12. What are the 4 parts of a hypothesis test?