Chapter 11: Introduction to Inference

Key Vocabulary:
- upper p critical value
- test of significance
- null hypothesis
- alternative hypothesis
- p-value
- statistically significant
- test statistic
- significance level
- z test statistic
- Hawthorne effect
- Type I Error
- Type II Error
- acceptance sampling
- power (of a test)

Calculator Skills:
- ZInterval
- Z-Test

11.1 Tests of Significance
1. What is a null hypothesis?
2. What is an alternative hypothesis?
3. In statistics, what is meant by the P-value?
4. If a P-value is small, what do we conclude about the null hypothesis?
5. If a P-value is large, what do we conclude about the null hypothesis?
6. How small should the P-value be in order to claim that a result is statistically significant?
7. Explain the difference between a one-sided alternative hypothesis and a two-sided alternative hypothesis.
8. What does a test statistic estimate?
9. What is meant by a significance level?

11.3 Use and Abuse of Tests
1. Significance tests are not always valid.
2. What are some factors that can invalidate a test?

11.4 Using Inference to Make Decisions
1. Explain the difference between a Type I Error and a Type II Error.
2. What is the relationship between the significance level $\alpha$ and the probability of Type I Error?
3. Describe how to calculate the power of a significance test.