Statistics - Unit 4b Test Review

Hypothesis Testing

Name:		

Date: _____

What you should know:

- 1. What test to use for
 - a. Mean with population standard deviation
 - b. Mean with sample standard deviation
 - c. Proportion
 - d. Standard deviation/variance
- 2. Difference between Type I and Type II Error
 - a. Which one is represented by alpha, which one is represented by beta?
- 3. When do you need to use degrees of freedom and how can you find out the degrees of freedom?
- 4. Difference between Traditional Method and P-value Method
 - a. Will use both!

Practice Problems:

1. The average monthly rent for a one-bedroom house in San Francisco is \$1229. A random sample of 15 onebedroom homes is about 15 miles outside of San Francisco had a mean rent of \$1350. The population standard deviation is \$250. At alpha=0.05, can we conclude that the monthly rent outside San Francisco differs from that in the city?

2. The Tennis Industry Association stated that the average age of a tennis fan is 32 years. To test the claim, a researcher selected a random sample of 18 tennis fans and found that the mean of their ages was 31.3 years and the standard deviation was 2.8 years. At alpha=0.05, does it appear that the average age is lower than what was stated by the Tennis Industry Association?

3. It has been reported that 59.3% of U.S. school lunches served are free or at a reduced price. A random sample of 300 children in a large metropolitan area indicated that 156 of them received lunch free or at a reduced price. At alpha-0.01, is there enough evidence to conclude that the proportion is less than 59.3%?

4. An advertisement claims that Fasto Stomach Calm will provide relief from indigestion in less than 10 minutes. For a test of the claim, 35 individuals were given the product; the average time until relief was 9.25 minutes. From past studies, the standard deviation of the population is known to be 2 minutes. Can you conclude that the claim is justified? Use the P-value Method, and let alpha=0.05.

5. A film editor feels that the standard deviation for the number of minutes in a video is 3.4 minutes. A sample of 24 videos has a standard deviation of 4.2 minutes. At alpha=0.05, is the sample standard deviation difference from what the editor hypothesized?

6. A biologist knows that the average length of a leaf of a certain full-grown plant is 4 inches. The standard deviation of the population is 0.6 inch. A sample of 20 leaves of that type of plant given a new type of plant food had an average length of 4.2 inches. Is there reason to believe that the new food is responsible for a change in the growth of the leaves? Use alpha=0.01.