Name:	Math 130 Day 18 Lecture Worksheet
Date:	Section 10.4: Hypothesis Tests for a Population Standard Deviation

Ex 1 (Sec. 10.4 Book Example 1): The "fun size" Snickers bar is supposed to weigh 20 grams. Because the penalty for selling bars under their advertised weight is severe, the manufacturer calibrates the machine so the mean weight is 20.1 grams. Suppose that the standard deviation of the weight of the candy was 0.75 grams before recalibration. The engineer wants to know if the recalibration results in more consistent weights. Conduct the appropriate test at the $\alpha = 0.05$ level of significance.

Weights o					
19.68	20.66	19.56	19.98	20.65	19.61
20.55	20.36	21.02	21.5	19.74	

a) Use the P-value method

b) Use the rejection region method

c) What does the $\alpha = 0.05$ significance level mean in a hypothesis test?

Ex 2 (Sec. 10.4 Hw #12 pg. 512): Counting Carbs The manufacturer of processed deli meats reports that the standard deviation of the number of carbohydrates in its smoked turkey breast is 0.5 gram per 2-ounce serving. A dietician does not believe the manufacturer and randomly selects eighteen 2-ounce servings of the smoked turkey breast and determines the number of carbohydrates per serving. The standard deviation of the number of carbohydrates is computed to be 0.62 gram per serving. Is there sufficient evidence to indicate that the standard deviation is not 0.5 gram per serving at the $\alpha = 0.05$ significance level?

a) Use the P-value method

b) Use the rejection region method

Extra Problem:

Suppose you're running the hypothesis test below. So you take a sample of size 70 and find the sample standard deviation to be 11.2.

<u>Hyp. Test</u>

 $H_0: \sigma = 12$

 $H_1: \sigma \neq 12$

a) What is the test statistic?

- b) What is the p-value?
- c) In this situation would you reject H_0 ?