AP Statistics   Name_____
Unit 07 – Day 05 Homework   Period_____
Significance Tests: 2-Sample Means

1. Mary Jo Fitzpatrick is the Vice President for Nursing Services at St. Luke's Memorial Hospital. Recently she noticed in the job postings for nurses that those that are unionized seem to offer higher wages. She decided to investigate and gathered the following randomly collected sample information.

   Would it be reasonable for her to conclude that there is significant difference in earning between union and non-union nurses? Use a 0.01 significance level.

Group	Mean Wage	Sample Standard Deviation	Sample Size
Union	$20.75	$2.25	40
Nonunion	$19.80	$1.90	45

2. A manpower-development statistician is asked to determine whether the hourly wages of semiskilled workers are the same in two cities. The results of the random survey are presented in the following table:

City	Mean	Standard Deviation	Sample Size
Portland	$8.95	$0.40	200
Seattle	$9.10	$0.60	175

Does the statistician have a right to be concerned about the differences in wages between the two cities? Use a 0.05 significance level.

3. Two research laboratories have independently produced drugs that provide relief to arthritis sufferers. The first drug was tested on a group of 90 randomly selected arthritis sufferers and produced an average of 8.5 hours of relief, and a sample standard deviation of 1.8 hours. The second drug was testing on 80 randomly selected arthritis sufferers, producing an average of 7.9 hours of relief, and a sample standard deviation of 2.1 hours. At a 0.05 significance level, does the second drug proved a significantly shorter time period of relief?

4. Notwithstanding the Equal Pay Act of 1963, in 1993 it still appeared that men earned more than women in similar jobs. A random sample of 38 male garbage men found a mean hourly wage of $11.28, and a sample standard deviation was $1.84. A random sample of 45 female garbage ladies found their mean wage to be $8.42, and a sample standard deviation was $1.31. On the basis of these samples, is it reasonable to conclude (at a = 0.01) that the male garbage men are earning over $2.00 more per hour than their female counterparts?