COURSE: MSCI 3710 **Print Name:**

Exam 1 **Signature:**

Version C **S.S.#:**

SEMESTER: Spring 2003

Instructions:

- Please print your name and social security number on this exam. Also, put your signature on this exam.
- On your scantron **PRINT** your name, your version, and your section number. To better protect your privacy also print your name on the backside of your scantron.
- You have 50 minutes to complete this exam. The exam is open book, open notes, and open mind. You may use any type of calculator but please show all your work on the exam and mark all answers on the scantron.
- Many of the questions follow the format of those in Adventures in Business Statistics. The remaining questions are either based on the Excel assignment or use an Adventures-like approach with problems nearly identical to those assigned in the textbook.
- When you have completed the exam, please insert your scantron into the exam booklet and turn them in to your instructor.
- No cheating.
- Good luck and we wish you well on the exam.

Note: Whenever question(s) are connected you may be asked to assume a result (given a value) from the previous question but this result may or may not be correct. This is to prevent you from losing points on a second question because you made a mistake on a previous question.

Use the information given below to answer the next two questions.
(Kvanli Chapter 9)
An auto dealer is marketing two different models of a high-end sedan. Since customers are particularly interested in the safety features of the sedans, the dealer would like to determine if there is a difference in the braking distance (the number of feet required to go from 60 mph to 0 mph) of the two sedans. Six drivers are randomly selected and asked to participate in a test to measure the braking distance for both models. Each driver is asked to drive both models and brake once they have reached exactly 60 mph. The distance required to come to a complete stop is then measured in feet. **Excel** output for the tests, based on the experiment and conducted at the 5% significance level, is shown in the following table.

t-Test: Paired Two Sample for Means

	Variable 1	*Variable 2*
Mean	152.5	154
Variance	25.1	22.86
Observations	6	6
Pearson Correlation	0.986524144	
Hypothesized Mean Difference	0	
df	5	
t Stat	-4.391550328	
P(T<=t) one-tail	0.003538799	
t Critical one-tail	XXXX	
P(T<=t) two-tail	0.007077598	
t Critical two-tail	1.475884801	

1. To test the claim that there is a difference in breaking distance of the two sedans, what is the p-value of the test using the **dependent** samples approach?

A. 0.3035
B. 0.0071*
C. 0.6071
D. 0.0035
E. 0.1

2. What are the decision and conclusion using the **dependent** samples approach if the test is conducted at the 5% significance level?

A. Reject the null hypothesis, conclude there is evidence of no difference in braking distance of the two sedans.
B. Fail to reject the null hypothesis, conclude there is insufficient evidence of no difference in braking distance of the two sedans.
C. Reject the null hypothesis, conclude there is evidence of a difference in braking distance of the two sedans.*
D. Fail to reject the null hypothesis, conclude there is insufficient evidence of a difference in braking distance of the two sedans.
E. There is insufficient information given to decide whether there is a difference in braking distance of the two sedans.

Use the information given in the following paragraph to answer the next two questions. (Kvanli Chapter 8)

An accountant of Slot-Ski Sandwich franchises claims that stores generate an average weekly revenue of at least $4,000 per store. A potential buyer who is considering purchasing Slot-Ski Sandwich franchise is doubtful about this claim, believing that the average weekly revenue is less than $4,000. He obtains a sample of revenues from 10 stores and conducts a statistical analysis on the data using Excel with a 1% level of significance, the results of which are shown below.

t Test for Population Mean

Number of Observations	10
Sample Standard Deviation	434.536547
Sample Mean	3969.700000
Ho: $\mu \geq 4000$	Ha: $\mu < 4000$
T*	-0.220504
P[T ≤ T*]	0.415200
T Critical, $\alpha = 0.01$	-2.821434

3. What is the critical value of test statistic to test the buyer's belief at the 1% level of significance?

A. –1.38
B. –0.17
C. –1.01
D. –0.05
E. –2.82 *

4. What is the conclusion of the test concerning the potential buyer's belief, conducted at the 1% significance level, and reason for the conclusion?

A. Conclude there is insufficient evidence the average weekly revenue **is less** than $4,000 because the calculated value of the test statistic **is in** the rejection region.
B. Conclude there is insufficient evidence the average weekly revenue **is less** than $4,000 because the calculated value of the test statistic **is not in** the rejection region.*
C. Conclude there is evidence the average weekly revenue **is more** than $4,000 because the **p-value is greater** than the significance level.
D. Conclude there is insufficient evidence the average weekly revenue **is more** than $4,000 because the calculated value of the test statistic **is in** the rejection region.
E. Conclude there is insufficient evidence the average weekly revenue **is more** than $4,000 because the calculated value of the test statistic **is not in** the rejection region.