

COURSE: DSCI 3710
Exam 2
Summer 5W2 2011

Print Name: _____
Signature: Key
Student ID#: _____

INSTRUCTIONS:

- Please print your name and student ID number on this exam. Also, put your signature on this exam.
- On your scantron **PRINT** your name and exam version.
- You have **110 minutes** to complete this exam. The exam is open book, open notes, and open mind. You may use any type of hand calculator but please show all your work on the exam and mark all answers on the scantron. Usage of cell phones, digital cameras, PDAs, and other communication devices is prohibited.
- Please **DO NOT** pull this exam apart. When you have completed the exam, please turn your scantron and exam booklet into your instructor, at the front desk.
- 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) as an answer for the previous question but this result (value) may or may not be correct. The procedure is set in place to prevent you from losing points on a subsequent question because you made a mistake on some previous question/s.

Use the information given below to answer the next four questions.

A researcher is interested in finding out whether more female teenagers use computer chat than male teenagers. Samples of 500 female and 500 male teenagers were selected, and 430 females and 390 males used computer chat in the past week. Is there evidence that a significantly larger proportion of female teenagers use computer chat as compared to male teenagers? Use a 0.1 level of significance.

1. What is the null hypothesis for this test?
 - A. $H_0: p_f = p_m$
 - B. $H_0: \pi_f \geq \pi_m$
 - C. $H_0: p_f \geq p_m$
 - D. $H_0: \pi_f \leq \pi_m$
 - E. $H_0: p_f \leq p_m^*$

2. Where is the Reject H_0 region for testing the use of computer chat by teenage females and teenage males as stated in the above case?
 - A. $Z > 1.645$
 - B. $Z < -1.645$
 - C. $Z > 2.33$
 - D. $Z > 1.28^*$
 - E. $Z < -2.33$

3. Assuming the p-value (observed level of significance) is **0.05**, what are the decision and conclusion of the test of hypothesis at the 0.1 level of significance?
 - A. Fail to reject the null hypothesis; conclude there is sufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.
 - B. Reject the null hypothesis; conclude there is sufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.*
 - C. Fail to reject the null hypothesis; conclude there is insufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.
 - D. Reject the null hypothesis; conclude there is insufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.
 - E. Inconclusive

4. Assuming that the calculated value of the test statistic is 1.05, what are the decision and conclusion of the test of hypothesis at the 0.1 level of significance?
 - A. Fail to reject the null hypothesis; conclude there is sufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.
 - B. Reject the null hypothesis; conclude there is sufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.
 - C. Fail to reject the null hypothesis; conclude there is insufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.*
 - D. Reject the null hypothesis; conclude there is insufficient evidence that the proportion of female teenagers using computer chat is greater than the proportion of male teenagers using computer chat.
 - E. Inconclusive

Use the following information to answer the next 2 questions.

Zenith Computers, Texas would like to predict weekly Internet sales based on the number of orders. Data (over 15 weeks), relating the sales volume (in thousands of dollars) to the number of orders were available. Regression analysis was performed using Excel. Output related to the regression is given below.

Week	Orders	Sales (\$000)
1	265	15.3
2	150	18.4
3	131	11.6
4	271	14.2
.	.	.
.	.	.
.	.	.

SUMMARY
OUTPUT

Regression Statistics	
Multiple R	0.795
R Square	0.632
Adjusted R Square	0.604
Standard Error	10.706
Observations	15.000