

Math 160 D

FIRST HOUR EXAM

NAME _____

General Notes:

1. Show work. Answers without supporting work may not be given credit.
2. Look over the test first, and then begin.
3. Calculators are permitted on this exam. You may also carry out any calculations to the point at which you would need a calculator and then punch in the numbers except as noted.

Friday, September 30, 2011
100 pts.

I. Some definitions (5 pts. each) Give brief definitions of the following:

a. Response variable

b. Median

c. Conditional distribution (in a two-way table)

d. Outlier

II. General questions

1. Several of the questions below refer to the following data set of exam scores:

41	68	69	70	77	78	78	80	81	85	85	87	89	92	99
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- a. (15 pts.) Using the techniques in the book, find the five number summary for this dataset by hand. Please do not use a calculator, and show your work.

41 68 69 70 77 78 78 80 81 85 85 87 89 92 99
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b. (10 pts.) Construct a box chart for the data set.

c. (10 pts.) Using your calculations from the previous page, calculate the IQR for the distribution and use it to determine if 41 is or is not an outlier. Say why or why not 41 is an outlier.

41 68 69 70 77 78 78 80 81 85 85 87 89 92 99
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- d . (10 pts.) Calculate the average and standard deviation for this dataset. It will be sufficient to leave your standard deviation in the form of a final expression, so that all that needs to be done is to enter the numbers in the expression into a calculator. Writing down the formulas will be sufficient for some partial credit, but not full credit (by themselves). Please give the average as a fully calculated number

III. Distributions

a. (5 pts.) Suppose that the combined SAT scores are approximately normal with a mean of 1026 and standard deviation 209. Suppose a student has a combined SAT score of 1300. Calculate the corresponding z-score.

b. (5 pts.) What percentage of the population has a combined score of 1300 and above?

c. (5 pts.) What test score corresponds to a z-score of 1.67?

IV. Regression

- a. (5 pts.) Write the formula for the correlation coefficient r between variables x and y , saying what the terms in the formula mean.
- b. (5 pts.) What does r^2 tell us? How do we interpret it?
- c. (5 pts.) Why is the least squares linear regression line called a **least squares** regression line? (That is, why do we use the term “least squares”?)

V. History (5 pts.)

Give a brief description of **one** of the following, saying what their contribution to Statistics is

John Graunt

Carl Friedrich Gauss

Karl Pearson