

Math 160 K

FIRST HOUR EXAM

NAME _____

General Notes:

1. Show work.
2. Look over the test first, and then begin.
3. Calculators are permitted on this exam. Carry out any calculations to the point at which you would need a calculator and then punch in the numbers

Friday, Sept. 25, 2009
100 pts.

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

a. Variable

b. Categorical variable

c. Quantitative variable

d. Median (of a distribution)

e Boxplot

f. Density function (give a definition)

II. General questions

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

95 / 100 / 87 / 89 / 95 / 81 / 50

- a. (10 pts.) Following the technique given in the textbook, construct (by hand) a stem-and-leaf plot (stemplot) for the data set above
- b.. (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.

- c. (10) From your work on part (b), find the IQR and use it to show that the lowest score is an outlier (say why it is).
- d. (15 pts.) Calculate the average and standard deviation for this dataset. It will be sufficient to leave your answer 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).

III. Distributions

- b. (5 pts.) What is a normal distribution?
- c. (5 pts.) What is the 68-95-99.7 rule for a normal distribution?
- d. (5 pts.) (from example 1.27). The combined SAT scores is approximately normal with a mean of 1026 and standard deviation 209. Suppose a student has a combined SAT score of 1150. What is the corresponding z-score?
- e. (5 pts.) What does a z-score measure?