

Exam #1

Math 112-W

Thursday, September 22, 2005

For full credit show all work. When in doubt, explain your reasoning. Show two digits after the decimal point when rounding your answers.

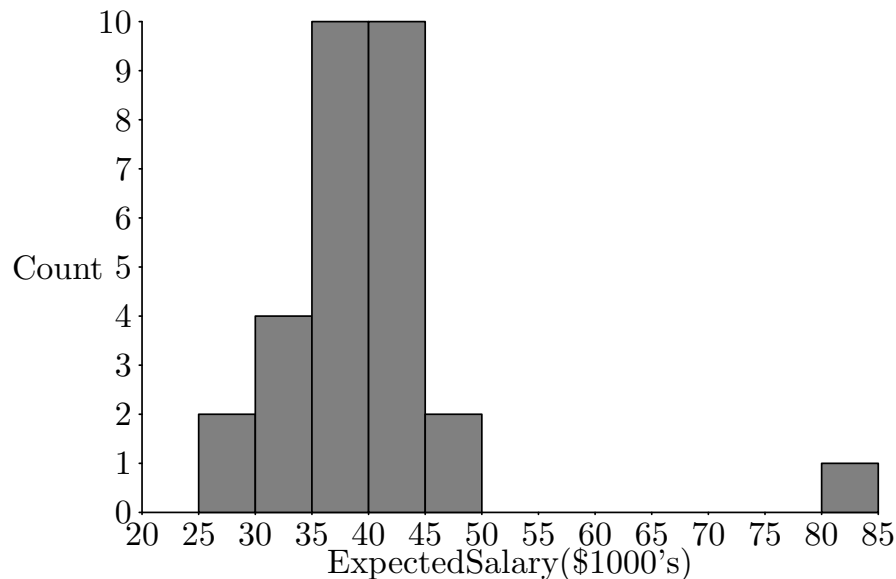
1. Construct a box-plot for the following data:

69, 52, 50, 65, 81, 57, 55, 73, 60, 99, 63, 95, 88, 68, 98

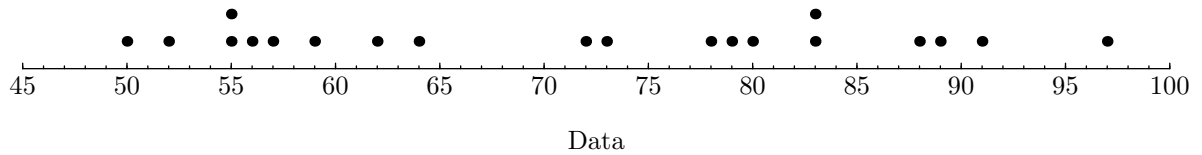
2. Explain why the interquartile range is resistant to outliers.
3. A morning statistics section has their first exam, with a mean score of 73 and a standard deviation of 6.5. An afternoon statistics section has their first exam, with a mean of 77 and a standard deviation of 7.2.
A student in the morning section scores 79. Find that student's z -score, and use it to find a corresponding raw score in the second section.
4. Explain which is larger and why of the median and mean of a distribution of data that is skewed to the left.
5. Put the following data into a stem-plot.

99, 59, 91, 78, 83, 74, 89, 79, 65, 69, 92, 75, 81, 63, 85, 93, 56, 53, 54, 51

6. Which parts of the five-number summary are resistant to outliers, and which aren't? Explain your answer.
7. Given a set of children's heights (in inches) with mean 54 and standard deviation of 5, use the Empirical Rule to describe where 68%, 95%, and 99.7% of the data should be.
8. Given the following bar graph of expected salaries from our class, what percentage of the students expect to make less than \$35,000 after graduation?



9. Give three examples of quantitative variables and three examples of categorical variables.
10. Explain why it was better to look at the injury rate than the number of injuries when trying to compare how dangerous various sports are.
11. What are outliers and how should we interpret them?
12. Use the following dot-plot to find the five-number summary.



13. Explain the difference between statistical variables and observational units.
14. Give an example from class of two data distributions that had similar centers but very different spreads.
15. Why do we have a square root in the formula for computing the standard deviation?