

Exam 1 - (50 pts)
Stat 145 – Fall 2009

Name _____

For credit show or explain all answers.

1. Recommendations of sugar consumption are no more than 6 teaspoons of sugar daily for women and 9 for men. Researchers recorded the amount of sugar 20 boys aged 14-18 consumed in 24-hours to the nearest teaspoon. The following data were obtained:

4	51	65	11
13	26	63	50
26	33	22	31
36	46	32	42
48	50	46	31

- (a). (4 pts) Construct a stemplot of this data.

- (b). (5 pts) Give the five-number summary for this data. Show your work.

2. Guidelines suggest that children and adolescents get a minimum of 60 minutes of physical activity daily. Findings suggest the actual daily amount of physical activity of boys aged 14-18 receive is normally distributed with a mean of 45 minutes and a standard deviation of 15 minutes.

(a). (3 pts) What percent of boys get 60 minutes or more of physical activity each day? (You may use the 68-95-99.7 rule to answer this question.)

(b). (3 pts) What percent of boys get at least 35 minutes of exercise daily?

(c). (3 pts) What percent of boys get between 25 and 35 minutes of exercise daily?

(d). (3 pts) What is the highest number of minutes of physical activity that the lowest 25% of boys receive?

3. In a study of crime rates, data from the following variables were recorded: age, gender, race, education (years), and annual income (gross).

(a) (4 pts) Which of the five variables listed above are:

i. categorical?

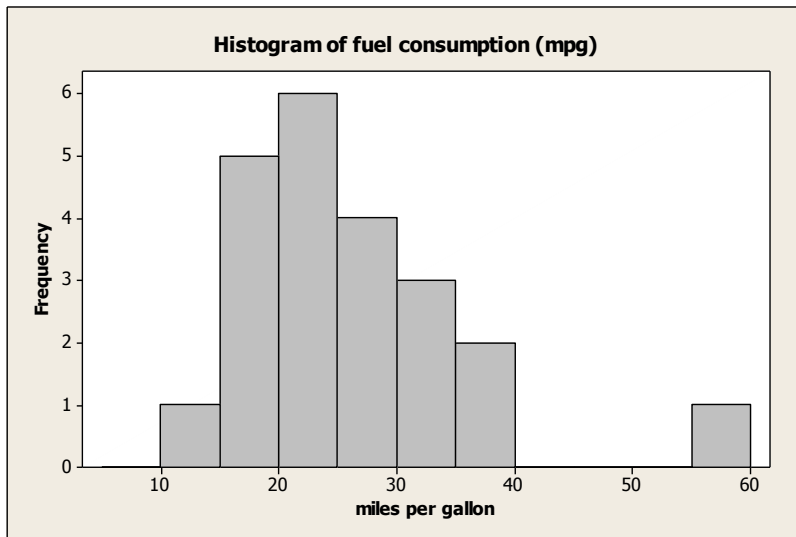
ii. quantitative?

(b) (5pts) The ages (in years) of four inmates are: 21, 28, 33, and 42. Calculate the mean and standard deviation of these ages. Include units in your answer. **SHOW WORK.**

i. mean:

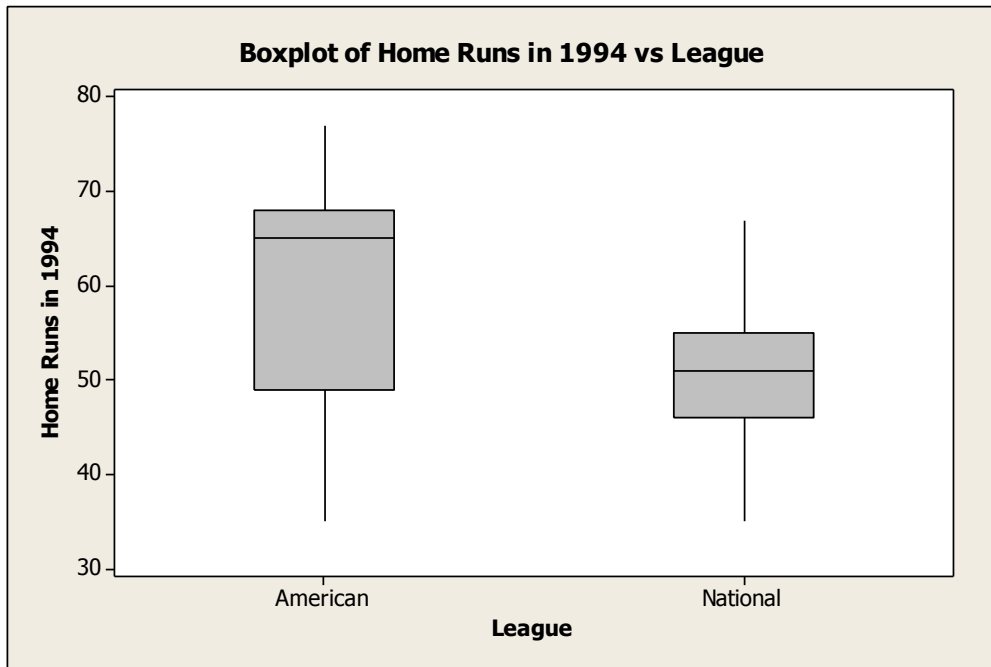
ii. standard deviation:

4. Highway fuel consumption was measured in a random sample of 22 vehicles. A histogram of their fuel consumption in miles per gallon appears below.



- (a) (4 pts) Describe the shape, approximate center, and spread of this histogram. Are there any outliers? *Note: No calculations are necessary.*
- (b) (4 pts) If the bar on the far right-hand side of the distribution is removed, will the value of the mean of the distribution increase, decrease, or stay the same? Explain your answer. *Note: No calculations are necessary.*
- (c) (4 pts) What percent of vehicles have fuel consumption less than 20 mpg?

5. Below are side-by-side boxplots comparing home runs in 1994 in the American and National baseball leagues. Use these boxplots to answer the following questions.



(a). (4 pts) Approximately what percent of the American league teams have home runs greater than 65?

(b). (4 pts) Which league has greater variability, American or National? Explain your answer.