

Text Exercise Set 5

NAME:

5-1 For each of the data sets listed, (i) obtain the five-number summary and the interquartile range, (ii) identify all potential outliers, and (iii) construct a modified box plot.

(a) The variable "Weekly Radio Hours" in the SURVEY DATA, displayed as Data Set A.1 in the appendix, consists of the following observations:

15 13 17 20 15 18 11 30 14 10 14 10 15 11 12
27 25 20 4 12 27 15 14 25 15 27 18 23 15 24

(b) The variable "Weekly Radio Hours" for only the males in the SURVEY DATA, displayed as Data Set A.1 in the appendix, consists of the following observations:

15 20 15 18 30 10 11 12 20 4 14 15 23 15 24

5-1 - *continued*

- (c) The variable "Weekly Radio Hours" for only the females in the SURVEY DATA, displayed as Data Set A.1 in the appendix, consists of the following observations:

13 17 11 14 14 10 15 27 25 12 27 15 25 27 18

- 5-2** For each of the data sets listed, (i) obtain the five-number summary and the interquartile range, (ii) identify all potential outliers, and (iii) construct a modified box plot.

- (a) The variable "Weekly TV Hours" in the SURVEY DATA, displayed as Data Set A.1 in the appendix, consists of the following observations:

15 20 18 12 14 11 10 12 8 21 12 8 11 18 17
8 9 8 27 9 6 11 14 5 15 8 10 10 13 9

5-2 - *continued*

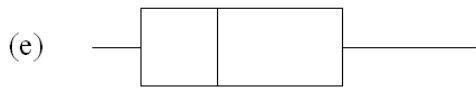
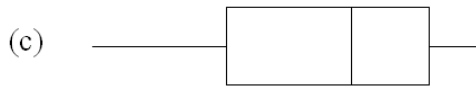
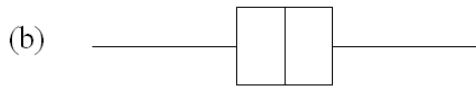
- (b) The variable "Weekly TV Hours" for only the males in the SURVEY DATA, displayed as Data Set A.1 in the appendix, consists of the following observations:

15 12 14 11 12 21 18 17 8 27 14 15 10 13 9

- (c) The variable "Weekly TV Hours" for only the females in the SURVEY DATA, displayed as Data Set A.1 in the appendix, consists of the following observations:

20 18 10 8 12 8 11 8 9 9 6 11 5 8 10

5-3 For each of the following box plots, indicate whether the mean is likely to be much less than the median, close to the median, or much greater than the median:



5-4 Suppose that the low temperature in a city is recorded for each day in June. With each of the situations described, construct a possible box plot or modified box plot for these temperatures.

(a) The mean and median temperature are both equal to 52, the distribution is symmetric, and there are no potential outliers.

(b) The mean and median temperature are both equal to 52, the distribution is symmetric, and there are exactly two potential outliers.

5-4 - *continued*

(c) The median temperature is equal to 52, the mean is larger than the median, and there are no potential outliers.

(d) The median temperature is equal to 52, the mean is smaller than the median, and there is exactly one potential outlier.

5-5 For each of the data sets described, indicate whether or not obtaining a mean or median would be meaningful, and state why or why not.

(a) The highest academic degree earned (No Degree, High School Degree, Associate's Degree, Bachelor's Degree, Master's Degree, Doctoral Degree) is recorded for each of 200 residents of a city.

(b) The temperatures at noon on a particular day is recorded for each of 200 cities.

(c) Which of three candidates for mayor a voter intends to vote for in an upcoming election is recorded for each of 200 voters of a city.

5-6 For each of the data sets described, indicate whether or not obtaining a mean or median would be meaningful, and state why or why not.

- (a) The race (White, Hispanic, Black, Asian, Other) is recorded for each of 200 residents of a city.

- (b) The age in years of each car that passes a particular intersection during a designated three-hour time period is recorded.

- (c) Which of the 10 stores in shopping center a shopper spends the most time in is recorded for each of 200 shoppers.

- (d) Each of 200 residents of a city are classified into one of four categories depending on how often they ride the city busses (never, occasionally, one or two days a week, almost every day or every day).

5-7 Make up a list of 10 numerical observations, where nine of the observations are greater than the mean and no observation is equal to any other observation.

5-8 Make up a list of 10 numerical observations, where nine of the observations are less than the mean and no observation is equal to any other observation.

5-9 Identify those list items which are variables and those which are not.

- (a) the highest academic degree held by an individual
- (b) the age of an automobile
- (c) all people holding a Master's Degree
- (d) a brand new car

5-10 Identify those list items which are variables and those which are not.

- (a) all days when the high temperature is 60 degrees
- (b) all people of Italian descent
- (c) the highest temperature of the day
- (d) a person's race

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