Pg. 394 #1 – 11 odd, 13, 16, 17, 18, 22, 28

1. A statistical question is one for which you don't expect to get a single answer. Instead, you expect a variety of answers, and you are interested in the distribution and tendency of those answers. *Sample question:* How old are the teachers in middle school?

3. yes; There are many different answers.

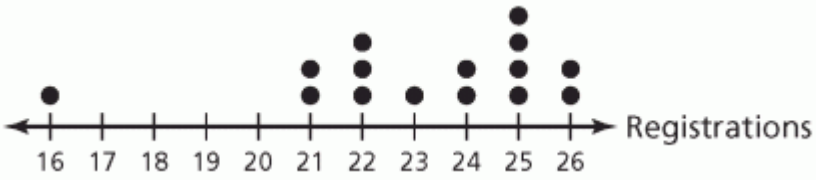
5. *Sample answer:* 2 pets; no

7. 100 senators; yes

9. not statistical; There is only one answer.

11. statistical; There are many different answers.

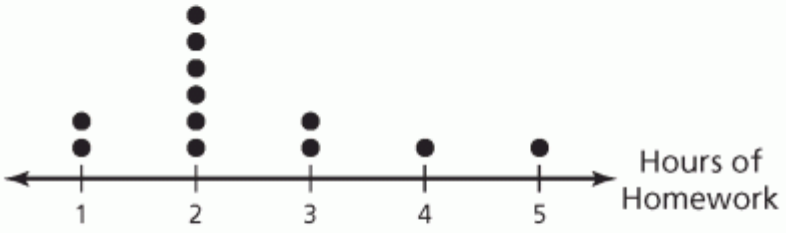
13.



Most of the registrations are in a cluster from 21 to 26. The peak is 25. There is a gap between 16 and 21.

16. **a.** yes; It is a statistical question because you would anticipate variability in the hours spent on homework each night by students.

b.



Most of the hours cluster around 2. The peak is 2. There is no gap.

c. Most students spend about 2 hours on homework during a school night.

17. **a.** 21 earthworms

b. *Sample answer:* Use a centimeter ruler. The units are centimeters.

c. *Sample answer:* "What is the length of an earthworm?"; The lengths are spread out pretty evenly from 15 centimeters to 28 centimeters.

18. **a.** 18 players

b. *Sample answer:* Use a tape measure. The units are inches.

c. *Sample answer:* "What are the heights of players on an NBA championship team?"; The heights are spread out, but most of the heights (in inches) are in the mid-to-low 80s.

22. *Sample answer:* 45 mi/h; Most of the data cluster around 45 and 45 miles per hour is a common speed limit.

28. yes

Pg. 400-401 #2, 7, 9, 11, 19-22

2. No; Dividing the sum of the data by the number of data values to find the mean does not necessarily result in one of the data values.

7. 3 brothers and sisters

9. 16 visits

11. **a.** yes; There will be variability in the lengths of the commercial breaks.

b. 3.45 minutes

19. 9

20. 30

21. 18.5

22. 15.5

Pg. 407-408 #3, 4, 7, 9, 11, 13, 21, 23, 29, 37

3. outlier; The other three are measures of center.

4. The number 8 must be in the data set at least twice, because the mode is the data value that occurs most often.

7. median: 7; mode: 3

9. median: 92.5; mode: 94

11. median: 17; mode: 12

13. The data were not ordered from least to greatest;
The median is 55.
49, 50, 51, 55, 58, 59, 63

21.

With Outlier	*Without Outlier*
mean: 48.5	mean: 53
median: 53	median: 54
mode: none	mode: none

The outlier reduces the median slightly, but reduces the mean more. There is no mode with or without the outlier.

23. mean: 7.61; median: 7.42; no mode

29. See *Taking Math Deeper.*

37. D

Pg. 416 #1, 2, 4-10 all, 23, 24

1. A measure of center represents the center of a data set, but a measure of variation describes the distribution of a data set.
2. 3 quartiles
4. median = 7, median of lower half = 5.5, median of upper half = 9; The data are close together.
5. median = 81.5; median of lower half = 67; median of upper half = 92; The data are spread out.
6. 12
7. 23
8. 57
9. 7.3
10. The data were not ordered from least to greatest; 35, 38, 41, 44, 48, 49, 51; The range is 16.
23. 11
24. 56

Name Answers Date

Chapter 9 Study Guide

Section 9.1- Introduction to Statistics

Identify whether the following questions are statistical questions. Explain how you know. If the answer is non-statistical, write the answer.

1. How many siblings do you have?

Yes. There are many (various) answers

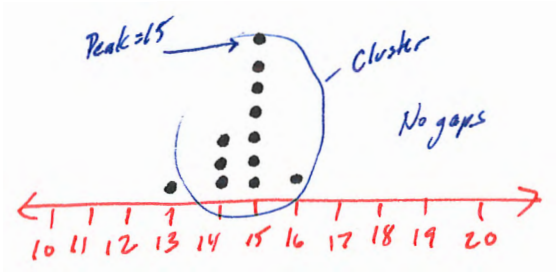
2. How many days are in the month of March?

No. There is only one answer

Display the data in a dot plot. Identify any clusters, peaks, or gaps in the data.

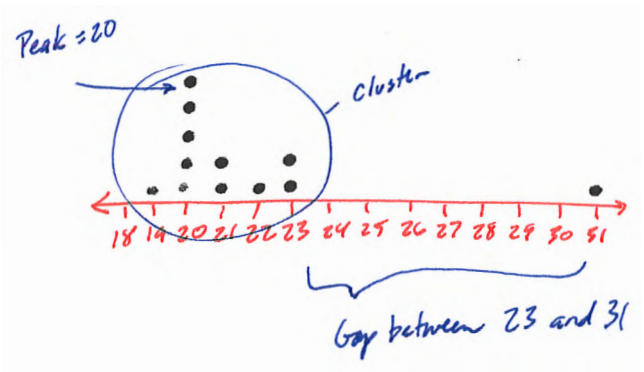
3.

Day of the Month			
14	16	15	15
15	14	15	13
14	15	15	15

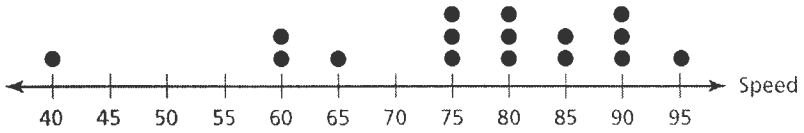


4.

Age of Soccer Player (years)			
21	23	20	19
20	22	23	20
31	20	21	20



5. The dot plot shows the speeds of pitches of a baseball.



a. How many pitches are represented?

16 pitches

b. How can you collect this data? What are the units?

Various answers
Example: You can collect the data via the internet. Miles per hour.

c. Write a statistical question that you can answer using the dot plot. Then answer the question.

Various . . . .

Section 9.2- Mean

Find the mean of the data. Show all steps of your work. DO NOT USE A CALCULATOR.

6. 8, 10, 15, 7, 18, 14

12

7. 66, 93, 76, 101, 88, 81, 72, 95

84

Find the mean of the data. Show all steps of your work. DO NOT USE A CALCULATOR.

8.

Movies Watched in Class	
Language Arts	||||
Social Studies	~~||||~~ |
Math	|
Science	|||
Art	|

3 movies

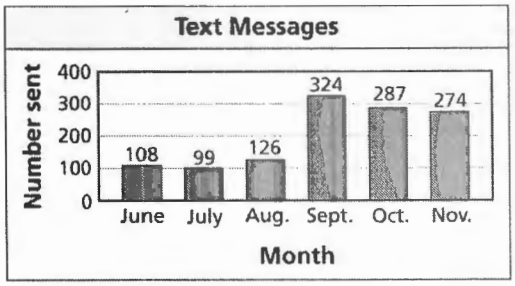
9.

Marching Band Members	
Wilson M.S.	44
East M.S.	62
Central M.S.	75
Seminole M.S.	39
Gator M.S.	55

55 band members

Find the mean of the data. Show all steps of your work. DO NOT USE A CALCULATOR.

10.



203 text messages

11. For ten school days, the numbers of bikes parked at a school bike rack are 10, 12, 8, 11, 13, 9, 2, 1, 9, and 12.

1, 2, 8, 9, 9, 10, 11, 12, 12, 13

a. What is the mean number of bikes per day?

8.7 bikes

b. What is the median number of bikes per day?

9.5 bikes

12. You spend 100 minutes on homework each night from Monday through Saturday. You spend 190 minutes on homework on Sunday. What is your mean number of minutes on homework for the week?

115 min.

Section 9.3- Measures of Center (Review HW pg. 407-408)

Find the median and mode(s) of the data.

13. 12, 15, 10, 12, 21, 9, 12

Median: 12

Mode: 12

14. 91, 96, 89, 97, 89, 98, 94, 93

Median: 93.5

Mode: 89

15. Describe and correct the error in finding the median and mode of the data.

There should be two 24s

Median = 25.5

Mode = 24

X **data:** 25, 28, 24, 22, 27, 24, 29, 26

ordered data: 22, 24, 25, 26, 27, 28, 29

The median is 26.
There is no mode.

Find the mode(s) of the data in the table.

16.

Breeds of Dogs in a Pet Hotel		
lab	poodle	beagle
schnauzer	lab	pug
pit bull	boxer	pit bull
beagle	akita	poodle
boxer	pit bull	lab

Lab and Pit Bull

17. You sent the same text message to ten of your friends. The numbers of seconds it took them to reply were:

1, 4, 8, 12, 3, 35, 3, 1, 2, 3 1, 1, 2, 3, 3, 3, 4, 8, 12, 35

a. Find the mean, median, and mode of the data. Show your work.

Mean = 7.2
Median = 3
Mode = 3

b. Which measure best represents the data? Explain your reasoning.

The mode. It is the same as 3 of the values of the data set.

c. Which data value is an outlier? Explain your answer.

35. It is the one "way" out there.

d. Predict how the mean, median, and mode would change if you remove the outlier in the data set.

Mean = It would decrease.
Median = It wouldn't change.
Mode = It wouldn't change.

Section 9.4- Measures of Variation (Review HW pg. 416-417)

Find the range of the data.

18. 34, 31, 35, 36, 27, 33

Range: 9

19. 76, 78, 76, 79, 81, 85, 92

Range: 16

20. Describe and correct the error in finding the range of the data.

X 3, 7, 12, 8, 30, 16, 24
The range is 24 − 3 = 21.

The largest value is 30.
30 − 3 = 27

Find the median, first quartile, third quartile, and interquartile range of the data. Show all the steps of your work in the space below. Organize your work!

21. 23, 33, 25, 16, 27, 43, 29, 40, 35

16, 23, 25, 27, (29), 33, 35, 40, 43
Q1 = 24, Q3 = 37.5

Median: 29 1st Quartile (Q_1): 24 3rd Quartile (Q_3): 37.5

Interquartile Range (IQR): 13.5 Outlier: None