

Ch 11 Statistical Measures Study Guide, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

The table shows the number of hours Ladena spent sleeping each night for 12 nights. Use the table to answer Exercises 1-3.

Hours Spent Sleeping			
8	6	7	7
10	8	8	10
8	8	5	7

1. What is the mean of the data? Round to the nearest tenth.

- A. 7.5 B. 7.6 **C. 7.7** D. 8.2

1. C

2. What is the median of the data?

2. 8

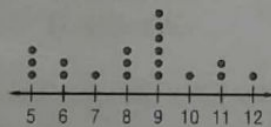
5, 6, 7, 7, 7, 8, 8, 8, 8, 8, 10, 10

3. What is the mode of the data?

3. 8

Refer to the dot plot to answer Exercises 4 and 5.

Cookie Dough Tubs Sold per Student



4. What is the median of the data?

- F. 7 G. 8 **H. 9** I. 10

4. H

5. What is the mode of the data?

- A. 5 B. 7 C. 8 **D. 9**

5. D

6. Define each vocabulary word below.

- F. third quartile H. interquartile range
G. first quartile I. range

6. _____

F. median of upper half of data.
G. median of lower half of data.
H. $Q3 - Q1$; range of the quartiles.
I. highest # minus lowest #

Ch 11 Statistical Measures Study Guide

Use the table for Exercises 7-9.

32, 32, 38, 42, 50, 50, 50, 75

Dress Costs (\$)			
38	50	32	42
50	32	75	50

7. What is the mean of the data?

- A. \$369 B. \$46 C. \$46.12 **D. \$46.13**

7. D.

8. Which measure of center best describes the data?

- F. mean **G. median** H. mode I. range

8. G

9. What is the mean cost without the outlier? Show all work to find the outlier. Round to the nearest cent if necessary.

- A. \$29.40 B. \$36.75 C. \$38 **D. \$42**

9. D

outlier: 75 limits: 72.5
 12.5

Exercises 10-12: Use the following set of data: 20, 28, 30, 6, 15, 18, 21, 22, 25, 29, 24, 26.

10. What are the first and third quartiles of the data?

6, 15, 18, 20, 21, 22, 24, 25, 26, 28, 29, 30

10. 1st: 19

3rd: 27

11. What is the interquartile range of the data?

19 23 27

11. 8

12. Are there any outliers in the data set? Show all work and limits.

$1QR - 1.5 = 27 + 12 = 39$
 $8 - 1.5 = 12$ $19 - 12 = 7$ } limits

12. 6

13. Katherine earned 90, 84, 78, 88 and 85 on her first 5 tests. What is the minimum grade Katherine needs to earn on the next test to have a mean of 86? Show all work.

86
 $\times 6$

 $516 - (90 + 84 + 78 + 88 + 85) = 91$

13. 91

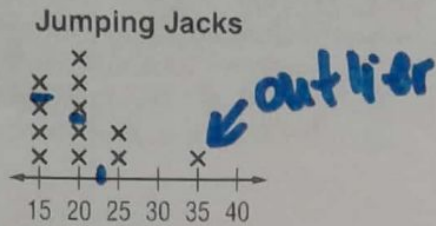
14. Which measure of center would you use to describe a data set with...

- no outliers mean - outliers median

Ch 12 Statistical Displays Study Guide, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

For Exercises 1-4, use the following line plot that shows the number of jumping jacks students completed in 30 seconds.



(20.4)
 mean: 20.416
 median: 20
 mode: 20

1. What is the mean, median and mode of the data? Round to the nearest tenth if needed.

1. _____
 peak: 20
 gap: 30

2. What is the peak and gap in the data?

3. What would you use to describe the center of the data?

- A. mean B. median C. mode D. range

3. **B** _____

4. What would you use to describe the spread of the data?

- F. interquartile range H. gap
 G. range I. mean absolute deviation

X _____

5. Which of the following is an appropriate display to show the average price of a postage stamp over the last 20 years?

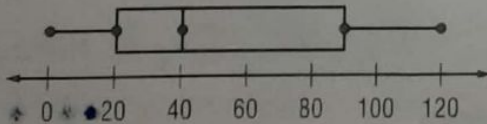
- A. line graph C. circle graph
 B. bar graph D. histogram

change over time

5. **A** _____

For Exercises 6-8, use the box plot. It shows the number of days on the market for single family homes in a city.

Home Sales: Days on the Market



6. What is the median of the data?

- F. 30 **G. 40** H. 90 I. 120

6. **G** _____

7. What percent of the homes were on the market less than 90 days?

- A. 0% B. 25% C. 50% **D. 75%**

7. **D** _____

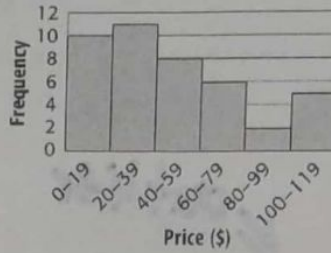
8. What is the range and interquartile range of the data?

8. **range: 120**
IQR: 70

Ch 12 Statistical Displays Study Guide

For Exercises 8 and 9, refer to the histogram. It shows the prices of different calculators.

Calculators



8. Which price range has the greatest frequency?
 F. \$100-\$119 H. \$80-\$99
 G. \$20-\$39 I. \$11

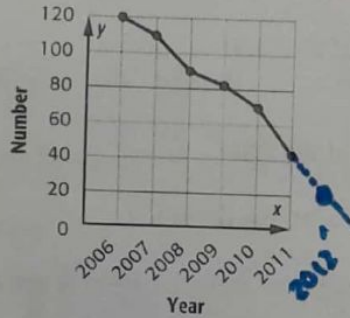
8. G

9. How many calculators cost \$80 or more?
 A. 7 B. 6 C. 3 D. 2

9. A

The line graph shows the number of band members in a high school for several years.

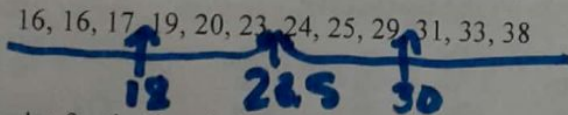
Band Members



10. If the trend continues, what is the best prediction for the number of students that will be band members in 2012?
 F. 25 H. 59
 G. 45 I. 100

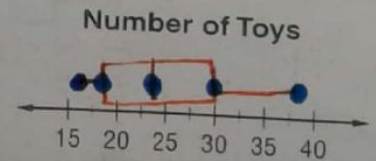
10. F

11. The number of toys donated by students in 12 classes is shown below. Find the measures of variation for the data set.



11. median: 23.5
 1st quartile: 18
 3rd quartile: 30
 Lower extreme: 16
 Upper extreme: 38

12. Draw a box plot for the data in Exercise 11.



13. Jonez surveyed people about their favorite music. The results are shown in the table. Which type of display would be best to show the survey results?

Music	Students
Classical	25
Country	30
Rock	30
Jazz	15

13. bar graph
 % name
 Categories

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. The manager of a hotel wants to know how often his customers rent boats at a nearby lake. Which sampling method will give valid results?

- A. He asks every tenth customer who checks into the hotel.
- B. He posts a question on the hotel's Web site.
- C. He randomly surveys households in the neighborhood.
- D. He asks every customer in the hotel lobby at noon.

1. A

2. To survey a town about traffic concerns, Himani divided the town into eight regions and randomly chose 10 households from each region. What type of sample did she form?

- F. simple random sample
- G. systematic random sample
- H. biased sample
- I. convenience sample

2. G

3. Five out of seven teens said they do homework every night. What is a reasonable prediction for the number of teens out of 980 who would do homework every night?

- A. 57
- B. 140
- C. 350
- D. 700

$$\frac{5}{7} = \frac{x}{980}$$

$\cdot 140$
 $\cdot 140$

3. D

4. Use the data set \$8, \$10, \$15, \$8, \$12, \$13, \$8 and \$11. Which measure of center would you use to convince people that the prices are low?

- F. mean 10.625
- G. median 10.5
- H. mode 8
- I. none of these

$8, 8, 8, 10, 11, 12, 13, 15$

4. H

5. Which of the following is an appropriate display to show the prices of gasoline over the past 3 weeks?

- A. bar graph
- B. line graph
- C. circle graph
- D. histogram

5. B

6. Which of the following is an appropriate display to show the heights of buildings arranged by intervals?

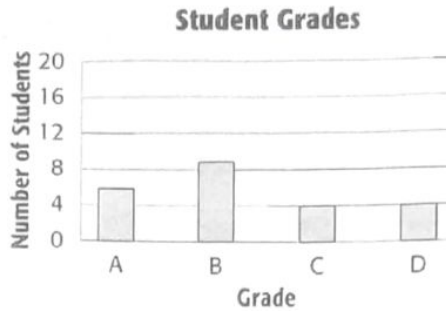
- F. bar graph
- G. line graph
- H. circle graph
- I. histogram

6. I

Test, Form 1B (continued)

SCORE _____

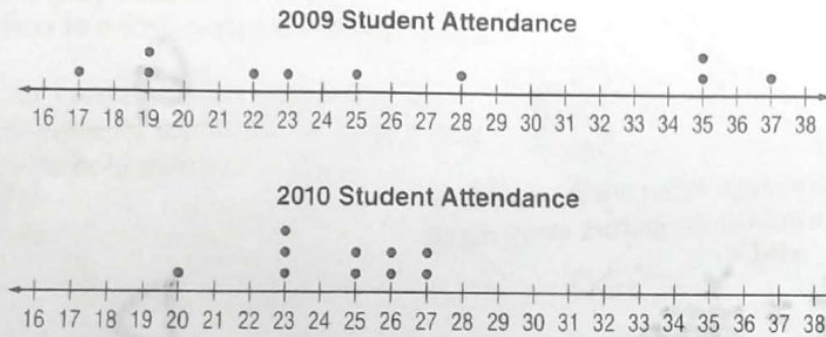
7. The bar graph compares the number of students that received a grade of an A, B, C or D in Ms. Logan's classroom. Which statement best tells why the graph could be misleading?



- A. The intervals on the vertical axis are not equal.
- B. The graph title is misleading.
- C. The intervals on the vertical axis make it appear that the number of students that received each grade are nearly the same.
- D. The graph should be a line graph.

7. C

8. The double line plot shows the number of students who attended the home games of the baseball team for two recent seasons.



Which of the following statements is *not* true

- A. The attendance for 2009 was more varied.
- B. The attendance for 2010 was more consistent.
- C. The attendance for 2009 peaked at 23 students.
- D. The attendance for 2010 ranged from 20 to 27.

8. H

9. A survey showed that 90% of students would select roller coasters as their favorite ride at an amusement park. Out of 5,000 students, predict how many would select roller coasters as their favorite ride?

- A. 4,500
- B. 500
- C. 450
- D. 50

$$\frac{90}{100} = \frac{x}{5000} \quad \cdot 50 \quad \cdot 50 \quad x = 4500$$

9. A

10. Which measure of center should you use to describe two data sets that are both symmetric?

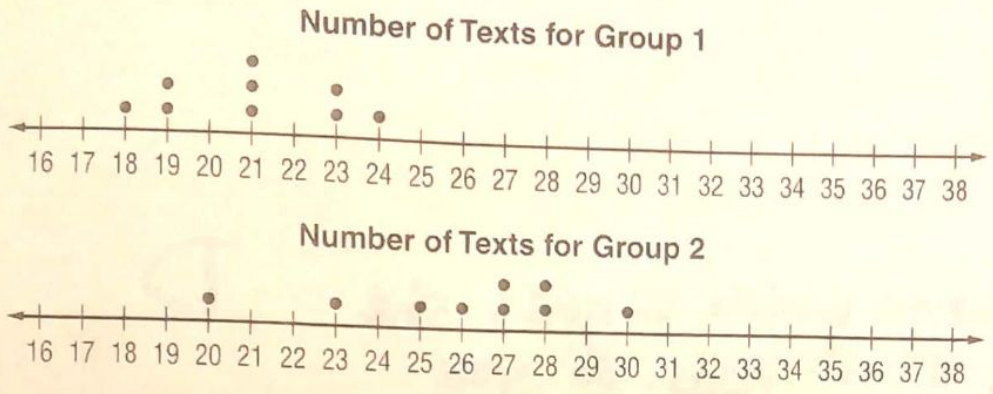
- D. mean
- G. mode
- H. median
- I. range

10. F

Test, Form 2B

Write the letter for the correct answer in the blank at the right of each question.

1. The double line plot shows the number of text messages 2 groups of students reported that they sent in one day.



- Which of the following statements is true?
- A. The mean for group 1 is larger than the mean for group 2.
 - B. Group 2 has a greater median number of texts that were sent. ~~Group 1 has a smaller interquartile range, so the data is less spread out.~~
 - C. The median for group 1 is larger than the median for group 2.
 - D. Both sets of data are symmetric. You should use the mean to compare the measures of center and the mean absolute deviation to compare the variations

1. B

2. A survey found that 3 out of 7 people in a community jog on a regular basis. If there are 3,150 people in the community, what is a reasonable prediction for the number of people who would jog regularly?

- F. 1,050
- G. 1,350
- H. 1,575
- I. 1,800

$$\frac{3}{7} = \frac{x}{3150}$$

·450 ·450

2. G

3. A survey found that 2 out of 8 students do not own a pet. If there are 480 students in a school, what is a reasonable prediction for the number of students who own a pet?

- A. 360
- B. 120
- C. 36
- D. 12

$$\frac{6}{8} = \frac{x}{480}$$

·60 ·60

3. A.

4. Which type of data display would be best for showing how the height of a plant changes each week during a science experiment?

- F. line plot
- G. bar graph
- H. stem-and-leaf plot
- I. line graph

change over time

4. I

Test, Form 2B (continued)

5. The table shows the number of hours Felisa spent sleeping each night for 12 nights. Which type of data display would *not* be suitable for displaying the data?

Hours Spent Sleeping			
8	6	7	8
10	8	8	6
6	8	8	7

- A. line plot
- B. bar graph
- C. circle graph
- D. line graph

you don't know which nights she slept each # of hours so you can't make a line graph

5. D

6. The number of toys donated by students in 12 classes is shown below. The principal says the average number of toys donated by each class is 26. Explain how this could be misleading.

16, 16, 17, 19, 20, 23, 24, 25, 29, 31, 33, 59

↑ | ↑
 18 23.5 30

← outlier

The mean or average is misleading bc there is a high outlier (59 toys) bringing the average up.

6. _____

7. To determine what park visitors like, every tenth visitor is surveyed at the park entrance. Out of 180 visitors, 22% said they would like to have more walking paths. The park manager concludes that about one-fifth of all park visitors would like to have more walking paths. Is this conclusion valid? Justify your answer.

yes; he took a valid systematic random sample. His conclusion of 22% \approx $\frac{1}{5} = 20%$ is correct

7. _____

8. Which measure of center should you use to describe two data sets that are both symmetric?

8. sym: mean
not sym: median