

## Assessment 9 Review Guide (Calculators Allowed)

## 6.SP.1 Statistical Questions

1. Emily is collecting data about Cecil County residents' favorite summer activities. Write a statistical question that best represents this scenario. sample:

What are Cecil County residents' favorite summer activity?

2. Zeke likes to collect buttons and he keeps them in a jar. Zeke can empty the buttons out of the jar, so he can see all of his buttons at once.

a. Which of the following are statistical questions that someone could ask Zeke about his buttons? For each question, **explain** why it is or is not a statistical question.

- What is a typical number of holes for the buttons in the jar?

Statistical - the # of holes will vary

- How many buttons are in the jar?

not statistical - only one answer

- How large is the largest button in the jar?

not statistical - only one answer

- What is a typical size for the buttons in the jar?

Statistical - allows for various answers/sizes

- How are these buttons distributed according to color?

not statistical - one answer

b. Write another statistical question related to Zeke's button collection.

sample: What is the average diameter of the buttons in the jar?

3. Which of the following are statistical questions? Rewrite each non-statistical question as a statistical question.

- How many days are in March?

NO - what is the average # of days in a month?

- How old is your dog?

YES

- How many bricks are in this wall?

NO - how many bricks are in a typical wall at NEMS?

- On average, how old are the dogs that live on this street?

YES

- What proportion of the students at your school like watermelons?

YES

- Do you like watermelons?

NO - How many 6th graders like watermelons at different schools?

- What was the highest temperature today at City Hall?

NO - What were today's average temperatures?

## 6.SP.2 Data Displays

## 6.SP.3 Measures of Center and Variability

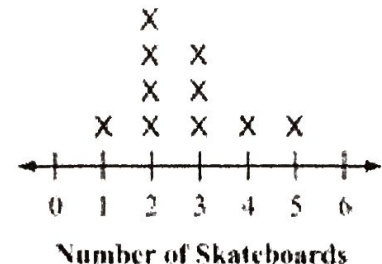
## 6.SP.4 Dot Plots and Box &amp; Whisker Plots

## 6.SP.5 Summarize and Describe Data

4. A group of students were surveyed to determine how many skateboards they owned. The dot plot shows the results of the survey. Determine measures of center and range by determining the mean, median, mode, and range for the set of data.

Mean 2.7 Mode 2

Median 2.5 Range 4

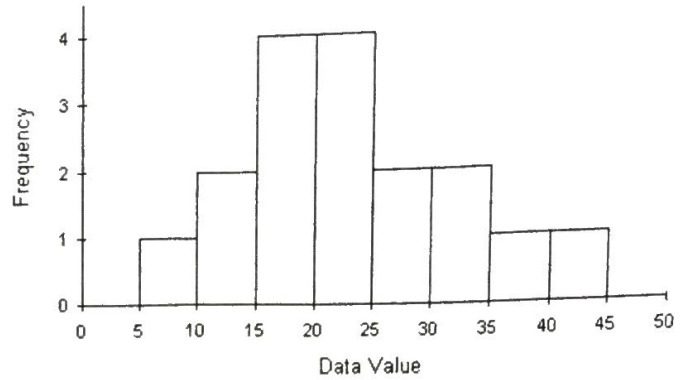


Use the histogram on the right to answer #5 – 9.

5. Which statement accurately describes the data shown in the histogram?

- A. The range is from 0 – 50
- B. The median is 20 – 25**
- C. The data is skewed left.
- D. 50% of the data is below 25.

Better Histogram



6. How many values are at least 35? **2**

7. How many values are less than 15? **3**

8. Describe the spread of the data  
(What is the range? Is the data symmetric?)

The values range from 5 to 45. The data is not symmetric.

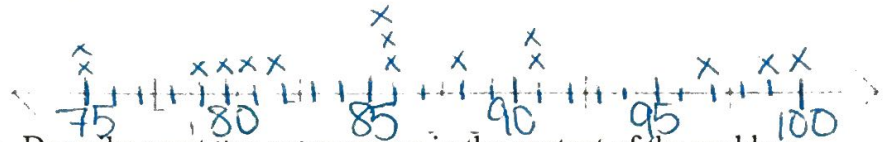
9. Describe the shape of the data.  
(Is it grouped to the right or left? Is it skewed? Is there a peak?)

The data is grouped slightly left, with a right skew. There is a peak at 15-25.

10. Sharon's Quiz Scores: 86, 97, 99, 100, 75, 91, 79, 80, 82, 88, 86, 75, 86, 91, 81

a) How many quizzes did Sharon take? **15**

b) Create a dot plot of the data.



c) Determine the mean of the data set. Describe what this value means in the context of the problem.

$1296 \div 15 = 86.4$  Sharon's average quiz score is 86.4%.

d) Determine the median of the data set. Describe what this value means in the context of the problem.

**86** Half of Sharon's quiz scores are above 86% and half are below 86%.

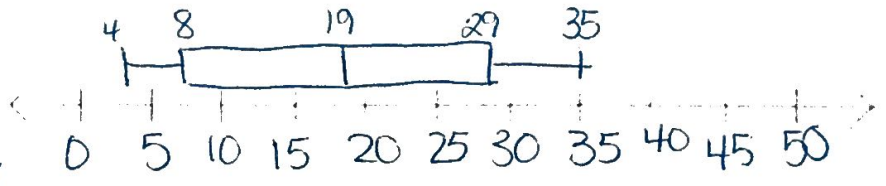
e) Determine the range of the data set. Describe what this value means in the context of the problem.

**25** Her highest and lowest scores are 25% apart.

11. 4, 6, 7, 9, 15, 18, 20, 23, 27, 31, 33, 35

a) List the 5 number summary and the interquartile range, then draw a box-and-whisker plot.

Minimum: 4  
 Lower Quartile: 8  
 Median: 19  
 Upper Quartile: 29  
 Maximum: 35  
 Interquartile Range: 21 29-8



b) What percent of the data lies between the upper quartile and the maximum? 25%

c) What percent of the data lies between the lower quartile and the upper quartile? 50%

d) What percent of the data falls above the median? 50%

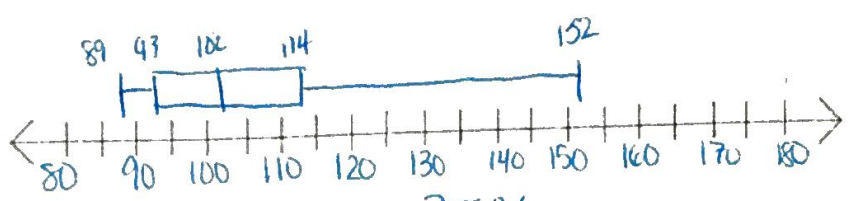
89, 91, 95, 98, 102, 108, 110, 118, 152

12. The data values on the table below depict the number of televisions sold at a department store each month for nine months.

April	May	June	July	August	September	October	November	December
110	98	91	102	89	95	108	118	152

a) Determine the five number summary, then create a box and whisker plot.

Minimum: 89  
 Lower Quartile: 93  
 Median: 102  
 Upper Quartile: 114  
 Maximum: 152



b) What percent of the data is between the lower quartile and median? 25%

c) What is the interquartile range for the average yearly rainfall in inches? 21  $114 - 93$

d) Describe the variability of the rainfall data using the interquartile range above.

The middle 50% of the TV sales data has a range of 21.

13. The colors of cars at NEMS are given in the frequency table. What is the most common color represented?

Red

colour of car	tally	frequency
red		11
blue		5
green		8
black		4
white		1
other		7
total		36

14. How many cars are represented?

36

15. Examine the line plot.

a) How many students are represented in the data set?

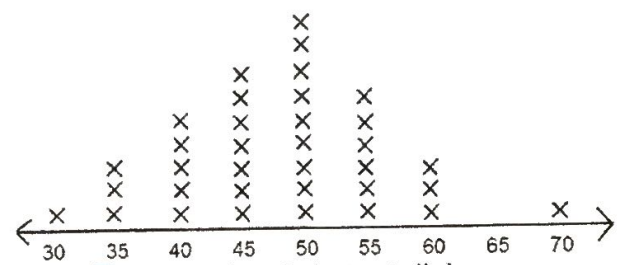
35

b) What is the median of the data set?

50

c) What does the median represent?

Half of the students studied more than 50 minutes and half studied less than 50 minutes.



16. The following data set represents the number of students in each group on a recent field trip.

a. Find the mean number of students per group.

8.7

b. Fill in the table to show the absolute deviations.

# of Students	Absolute Deviation
8	0.7
10	1.3
5	3.7
8	0.7
14	5.3
9	0.3
7	1.7

c. Determine the Mean Absolute Deviation:

$13.7 \div 7 = 1.96$

17. Charlie and Isabelle are recording data on the temperatures in their towns this month. Charlie's mean absolute deviation was 5.43 degrees per day. Isabella's mean absolute deviation was 2.1 degrees per day. Describe which town has more consistent temperatures. Use what you know about **variability** and **mean absolute deviation** to explain your answer.

Isabella's town has more consistent temperatures because the MAD is smaller and closer to 0, so it varies less.

18. The mean absolute deviation for Anna's test scores this year is 4.5. The mean absolute deviation for Evan's test scores this year is 10.71. Who is a more consistent student? Use what you know about variability and mean absolute deviation to explain your answer.

Anna's scores are more consistent because the MAD is smaller and closer to 0, so it varies less.

19. Billy Bob's test scores are 92, 90, 85, 91, 65, and 81. The mean of these values is 84. What is the mean absolute deviation of Billy Bob's test scores? **Show your work.**

$$8 + 6 + 1 + 7 + 19 + 3 = 44$$

$$44 \div 6 = 7.\bar{3}$$

7.3

20. The follow numbers represent the number of absences for ten 6<sup>th</sup> grade students at NEMS.

8      20      15      4      0      18      7      8      3      5

0, 3, 4, 5, 7, 8, 8, 15, 18, 20

a. Find the mean of the scores. What does the mean represent in relation to the **data set**?

8.8 The average amount of absences is 8.8 days.

b. Find the median of the scores. What does the median represent in relation to the **data set**?

7.5 Half of the students were absent more than 7.5 days and half were absent less than 7.5 days.

21. Part A: Calculate the mean, median, and mode of the following hourly wages of different workers.

8.60, 9.50, 11.00, 10.25, 9.75, 9.00, 8.95, 10.00,  
8.6, 8.95, 9, 9.5, 9.75, 10, 10.25, 11

Mean = 9.631      Median = 9.625      Mode = None

Part B: Which measure of central tendency should the workers use to convince their managers to raise their salaries?

The median, because it is the lowest value, which makes it look like they earn less and should get raises.

22. Nicole and Tommy are comparing their weekly paychecks over the past two months.

Nicole -- 90, 32, 80, 91, 93, 84, 88, 79      Tommy - 95, 90, 83, 90, 82, 88, 77, 79

a. Find the mean and median for Nicole's and Tommy's paychecks. Which measure of central tendency best describes Nicole's pay? Which best describes Tommy's pay? Explain.

Nicole: Mean = 79.625      use median - 32 is an outlier      Tommy: Mean = 85.5 ← use mean - no outlier      Median = 85.5

b. Compare the paychecks to determine who earned more, based on the measures of central tendency you selected in part a. Justify your answer.

Nicole earns more, because \$86 > \$85.50.