

Algebra 1 - Data Distributions and Summary Statistics - Quiz

Common Core S-ID.A.1, S-ID.A.2, S-ID.A.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

Check what you know about data distributions and summary statistics with 10 multiple-choice questions (S-ID.A.1, S-ID.A.2, and S-ID.A.3). Each question has one correct answer, and the explanation points out the common error behind the wrong choices. Use the results to decide what to practice next.

Algebra 1 · Common Core State Standards: **S-ID.A.1, S-ID.A.2, S-ID.A.3**

Questions

Question 1

What is the mean of 5,7,8,10,15?

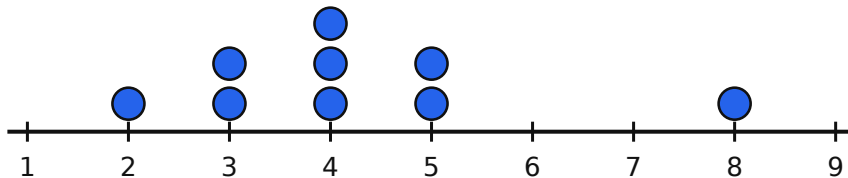
- A. 9
- B. 8
- C. 10
- D. 45

Question 2

What is the median of 3,9,4,8?

- A. 6
- B. 8
- C. 5
- D. 4

Question 3



What is the mode of the data in the dot plot?

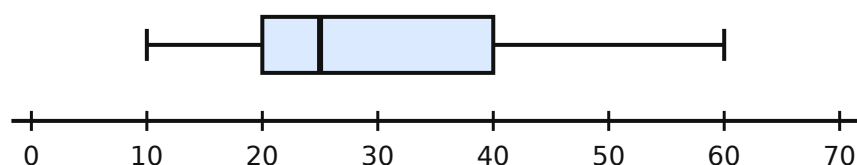
- A. 3
- B. 5
- C. 4
- D. 8

Question 4

A distribution is skewed right. Which statement is usually true?

- A. The median is greater than the mean
- B. The mean equals the median
- C. The mean cannot be computed
- D. The mean is greater than the median

Question 5



What is the IQR shown in the box plot?

- A. 50
- B. 20
- C. 25
- D. 30

Question 6

A data set has $Q1 = 12$ and $Q3 = 20$. Which value is an outlier by the $1.5 \cdot IQR$ rule?

- A. 30
- B. 35
- C. 8
- D. 25

Question 7

Adding a very large outlier to a data set will most affect which statistic?

- A. The mean
- B. The median
- C. The IQR
- D. The mode

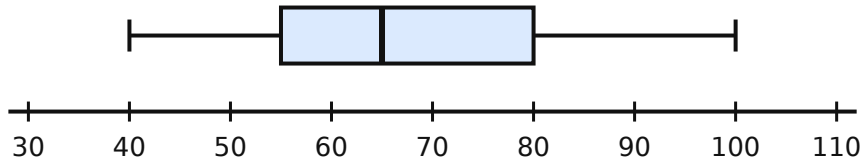
Question 8

Data set A has a standard deviation of 2 and data set B has a standard deviation of 6, and

both have the same mean. What does this show?

- A. A is more spread out than B
- B. B has a larger mean
- C. A has more values
- D. B is more spread out than A

Question 9



About what percent of the scores are above the median?

- A. 25%
- B. 50%
- C. 75%
- D. 65%

Question 10

For skewed data such as house prices, which pair of statistics is usually best?

- A. Mean and standard deviation
- B. Mean and range
- C. Median and IQR
- D. Mode and mean

Answers

1. **A** - The sum is 45 and $45 \div 5 = 9$. The median is 8.
2. **A** - Ordered: 3, 4, 8, 9. The middle two values are 4 and 8, so the median is 6.
3. **C** - The value 4 has the tallest stack, three dots.
4. **D** - The long tail of large values pulls the mean above the median.
5. **B** - $IQR = Q3 - Q1 = 40 - 20 = 20$. The range is 50.
6. **B** - $IQR = 8$, and the upper fence is $20 + 12 = 32$. Only 35 lies beyond 32.
7. **A** - The mean uses every value and is pulled toward the outlier. The median and IQR barely change.
8. **D** - A larger standard deviation means the values are typically farther from the mean.
9. **B** - The median splits the ordered data in half, so 50% of the values are above it.
10. **C** - Skewed data and outliers distort the mean and standard deviation, so the median and IQR are more resistant.

Remember

- Dot plots show every value; histograms group data into intervals; box plots show five numbers.
- Mean = sum $\div$ count; median = middle value.
- $IQR = Q3 - Q1$; range = maximum - minimum.
- Outlier rule: below $Q1 - 1.5 \cdot IQR$ or above $Q3 + 1.5 \cdot IQR$.
- With outliers or skew, the median and IQR are better summaries than the mean and standard deviation.