

Displaying Data: Histograms and Box Plots

Algebra 1 • Section 10.2

Name: _____

Date: _____

Score: _____ / 12

Quick Review and Helpful Hints

Data questions are about choosing the right summary. Read the labels carefully, identify the total or condition being used, and connect each statistic to what it tells about the data.

Q Example: Find the mean of 6, 8, 10, 12.

Work: Add the values to get 36, then divide by 4 values.

Answer: 9

Practice Problems

Solve each problem. Show enough work that another student could follow your thinking.

- | | | | |
|---|-------|--|-------|
| 1. Find the range of data 4, 7, 9, 12, 15. | _____ | 6. Which plot groups data into intervals? | _____ |
| 2. Find the median of 3, 8, 10, 14, 20. | _____ | 7. A histogram bin 10-19 has frequency 6. What does that mean? | _____ |
| 3. Find Q_1 and Q_3 for 2, 4, 6, 8, 10, 12, 14. | _____ | 8. Find the five-number summary for 1, 3, 5, 7, 9. | _____ |
| 4. Find the IQR if $Q_1 = 9$ and $Q_3 = 22$. | _____ | 9. If a box plot has a long right whisker, what does it suggest? | _____ |
| 5. Which plot best shows quartiles? | _____ | 10. Find the median of 6, 9, 12, 15. | _____ |

Word Problems

11. Scores are grouped 60-69: 3, 70-79: 8, 80-89: 5. Which interval has most scores?

12. A box plot has min 5, $Q_1 = 8$, median 12, $Q_3 = 18$, max 20. Find IQR.



Answer Keys

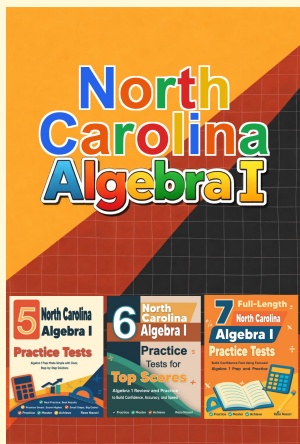
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|------------------------|------------------------------------|
| 1. 11 | 7. 6 data values are from 10 to 19 |
| 2. 10 | 8. 1, 3, 5, 7, 9 |
| 3. $Q_1 = 4, Q_3 = 12$ | 9. Right-skewed data |
| 4. 13 | 10. 10.5 |
| 5. Box plot | 11. 70-79 |
| 6. Histogram | 12. 10 |

Step-by-Step Explanations

- Range is maximum minus minimum: $15 - 4 = 11$.
- The middle value in ordered data is 10.
- Use the medians of the lower and upper halves.
- IQR is $Q_3 - Q_1$.
- Box plots display median, quartiles, and extremes.
- Histograms use bins or intervals.
- The bar height counts values in that interval.
- Minimum, Q_1 , median, Q_3 , and maximum are each visible in this small set.
- A longer right tail means larger values are more spread out.
- With four values, average the two middle numbers: $(9 + 12)/2 = 10.5$.
- The largest frequency is 8.
- IQR is $18 - 8 = 10$.



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