Mean and Median

Mean and median: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Mean = sum/count; median = middle value after sorting. For $2, 3, 8, 11$, mean $= 24/4 = 6$ and median $= (3 + 8)/2 = 5.5$. A mean need not occur in the list. For five values with mean 7, the required total is $5 \times 7 = 35$.

Worked example

Find mean and median. Data: $2, 3, 8, 11$.

1. Sum $= 2 + 3 + 8 + 11 = 24$; mean $= 24/4 = 6$.
2. The two middle values are 3 and 8; median $= (3 + 8)/2 = \frac{11}{2}$.
Answer: Mean 6; median $\frac{11}{2}$.

Practice Problems

Show your thinking.

1. A student selects the unsorted middle value 7. Correct the centers. Data: $9, 1, 7, 3, 5$.

2. Find the missing score. Known values: $3, 8, 9$; there are 4 values with mean 7.

3. A student uses only one middle value for the median. Repair it. Data: $2, 4, 7, 11$.

4. Recover the fifth observation. Known values: $10, 12, 15, 18$; there are 5 values with mean 14.

5. A student drops the zeros before dividing. Correct the mean and median. Data: $0, 0, 3$.

6. Explain why the mean exceeds the median. Data: $4, 5, 6, 25$.

Answer Key

1. Mean 5; median 5.
2. Missing value 8.
3. Mean 6; median $\frac{11}{2}$.
4. Missing value 15.
5. Mean 1; median 0.
6. Mean 10; median $\frac{11}{2}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Sum $= 9 + 1 + 7 + 3 + 5 = 25$; mean $= 25/5 = 5$.
2. In $1, 3, 5, 7, 9$, position 3 is 5, the median.

Problem 2

1. Required total $= 4 \times 7 = 28$.
2. Known sum $= 20$; missing $= 28 - 20 = 8$.
3. Check $(20 + 8)/4 = 7$.

Problem 3

1. Sum $= 2 + 4 + 7 + 11 = 24$; mean $= 24/4 = 6$.
2. The two middle values are 4 and 7; median $= (4 + 7)/2 = \frac{11}{2}$.

Problem 4

1. Required total $= 5 \times 14 = 70$.
2. Known sum $= 55$; missing $= 70 - 55 = 15$.
3. Check $(55 + 15)/5 = 14$.

Problem 5

1. Sum $= 0 + 0 + 3 = 3$; mean $= 3/3 = 1$.
2. In $0, 0, 3$, position 2 is 0, the median.

Problem 6

1. Sum $= 4 + 5 + 6 + 25 = 40$; mean $= 40/4 = 10$.
2. The two middle values are 5 and 6; median $= (5 + 6)/2 = \frac{11}{2}$.
3. The high 25 raises the total and mean but leaves the middle pair $5, 6$ unchanged. For comparison, using 7 instead of 25 keeps the median 5.5 but lowers the mean to $(4 + 5 + 6 + 7)/4 = 5.5$.

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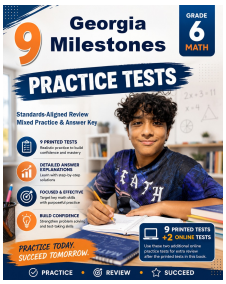

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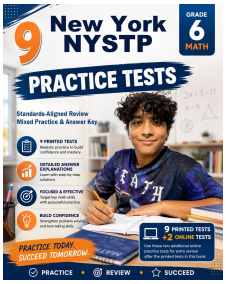

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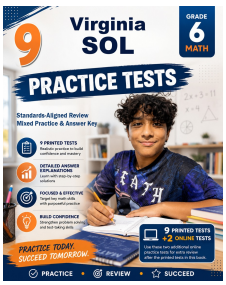

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