

Grade 6 · Mean, Median, Range, IQR and Mean Absolute Deviation · Test Answer Key

Common Core 6.SP.A.3, 6.SP.B.5c, 6.SP.B.5d · mathovore.fr

This answer key gives a full worked solution and a scoring guide for each of the eight questions. The test is worth 20 points. Award partial credit as described, and accept any correct reasoning when a question asks which measure is best for data with an outlier.

Grade 6 Common Core: 6.SP.A.3 · 6.SP.B.5c · 6.SP.B.5d

Question 1: Mean and median (2 points)

Mean: $\frac{6+3+12+8+5+14}{6} = \frac{48}{6} = 8$.

Order: 3, 5, 6, 8, 12, 14. Median: $\frac{6+8}{2} = 7$.

The mean is **8** and the median is **7**.

Scoring: 1 point for the mean; 1 point for ordering the data and finding the median.

Question 2: Range and IQR (2 points)

Order: 11, 12, 14, 17, 19, 20, 23, 25.

Range: $25 - 11 = 14$.

Median: $\frac{17+19}{2} = 18$. $Q_1 = \frac{12+14}{2} = 13$. $Q_3 = \frac{20+23}{2} = 21.5$.

$IQR = 21.5 - 13 = 8.5$

The range is **14** and the IQR is **8.5**.

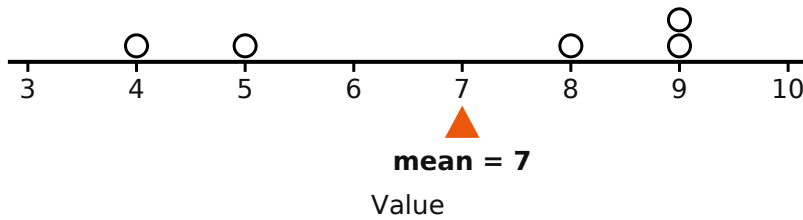
Scoring: 1 point for the range; 1 point for the IQR.

Question 3: Mean absolute deviation (3 points)

(a) $\frac{4+5+8+9+9}{5} = \frac{35}{5} = 7$. The mean is **7**.

(b) Distances from 7: 3, 2, 1, 2, 2. Sum: 10. $MAD = 10 \div 5 = 2$. The MAD is **2**.

Scoring: Part (a): 1 point. Part (b): 1 point for the distances, 1 point for the MAD.



Solution figure.

Question 4: Missing test score (3 points)

(a) The five scores must total $5 \times 84 = 420$. The four scores total $80 + 90 + 78 + 88 = 336$. $420 - 336 = 84$. The fifth score is **84**.

(b) $\frac{336 + 100}{5} = \frac{436}{5} = 87.2$. The mean is **87.2**.

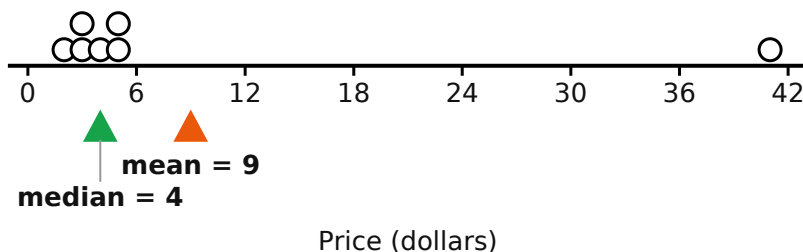
Scoring: Part (a): 1 point for the needed total, 1 point for the score. Part (b): 1 point.

Question 5: Yard sale prices (3 points)

(a) Mean: $\frac{2+3+3+4+5+5+41}{7} = \frac{63}{7} = 9$. The 4th ordered value is 4, so the median is 4. The mean is \$9 and the median is \$4.

(b) The **median** is better. The price \$41 is an outlier that pulls the mean above six of the seven prices.

Scoring: Part (a): 1 point each. Part (b): 1 point for choosing the median with a reason.



Solution figure.

Question 6: Compare two teams (2 points)

Team A distances from 10: 2, 1, 0, 1, 2. Sum: 6. $MAD = 6 \div 5 = 1.2$.

Team B distances from 10: 6, 3, 0, 3, 6. Sum: 18. $MAD = 18 \div 5 = 3.6$.

The MADs are **1.2** for Team A and **3.6** for Team B.

Scoring: 1 point for each team.

Question 7: Reading a box plot (3 points)

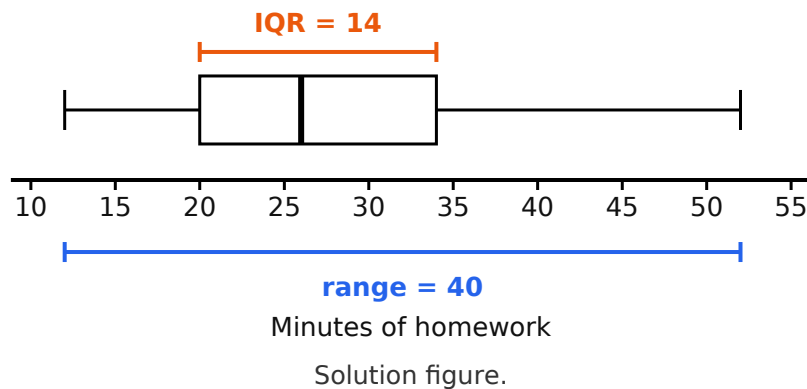
(a) $IQR = 34 - 20 = 14$.

(b) Range: $52 - 12 = 40$.

(c) The values above $Q_3 = 34$ are the top fourth of the data, which is $\frac{1}{4}$ of the students.

Answers: **14 minutes, 40 minutes, $\frac{1}{4}$.**

Scoring: 1 point for each part.



Question 8: Salaries (2 points)

Mean: $\frac{32+34+35+36+163}{5} = \frac{300}{5} = 60$, so \$60,000.

Median: the 3rd value, \$35,000.

The **median**, \$35,000, is better. The salary \$163,000 is an outlier, and four of the five workers earn far less than the mean.

Scoring: 1 point for both values; 1 point for choosing the median with a reason.

Total
20 points