

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

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

This answer key gives complete worked solutions for all 20 problems on the center and variability worksheet. Each solution shows the ordered data or the distances from the mean, so students can see how every final answer was found.

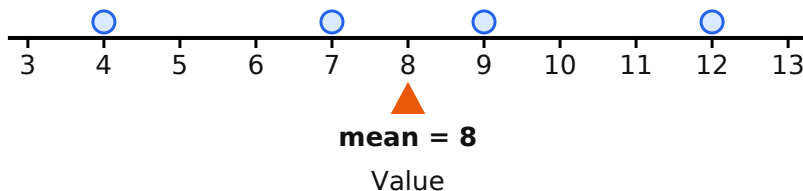
Grade 6 Common Core: 6.SP.A.3 · 6.SP.B.5c · 6.SP.B.5d

Problem 1: Find the mean

Sum: $4+7+9+12=32$.

$32 \div 4 = 8$

The mean is **8**.



Solution figure.

Problem 2: Median, odd count

Order: 9, 11, 12, 15, 20.

The middle value is the 3rd one.

The median is **12**.

Problem 3: Median, even count

Order: 3, 5, 6, 8, 10, 12.

The two middle values are 6 and 8. $\frac{6+8}{2} = 7$

The median is **7**.

Problem 4: Books Read Dot Plot

Data in order: 0, 1, 1, 2, 2, 2, 2, 3, 3, 5.

Mean: $(0+1+1+2+2+2+2+3+3+5) \div 10 = 21 \div 10 = 2.1$

Median: the 5th and 6th values are both 2, so the median is 2.

Mode: the value with the tallest stack is 2 (4 students).

Range: $5 - 0 = 5$

Problem 5: Find the range

Greatest: 40. Least: 18.

$$40 - 18 = 22$$

The range is **22 centimeters**.

Problem 6: Daily High Temperatures

Mean: $68 + 72 + 75 + 71 + 69 + 73 + 76 = 504$ and $504 \div 7 = 72^\circ\text{F}$.

Median: in order, 68, 69, 71, **72**, 73, 75, 76. The middle value is 72°F .

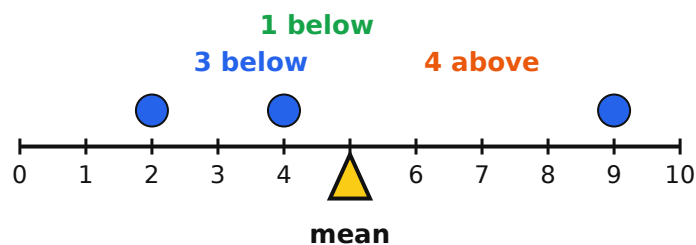
Range: $76 - 68 = 8^\circ\text{F}$

Problem 7: Mean as a Balance Point

a. $(2+4+9) \div 3 = 15 \div 3 = 5$

b. 2 is $5 - 2 = 3$ below the mean, 4 is $5 - 4 = 1$ below, and 9 is $9 - 5 = 4$ above.

c. Below the mean: $3 + 1 = 4$. Above the mean: 4. The totals are equal, so the mean is the **balance point** of the data.



Distances below and above the mean are both 4 in total.

Problem 8: Missing value

The total of four numbers with mean 12 is $4 \times 12 = 48$.

The known numbers add to $10 + 15 + 9 = 34$.

$$48 - 34 = 14$$

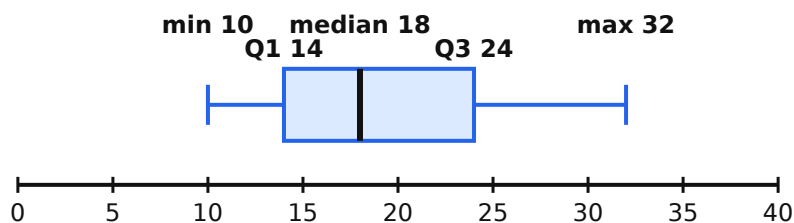
The fourth number is **14**.

Problem 9: Reading a Box Plot

a. Minimum 10, $Q_1 = 14$, median 18, $Q_3 = 24$, maximum 32.

b. Range: $32 - 10 = 22$ minutes

c. IQR: $Q_3 - Q_1 = 24 - 14 = 10$ minutes



Five-number summary labeled.

Problem 10: Quartiles and IQR

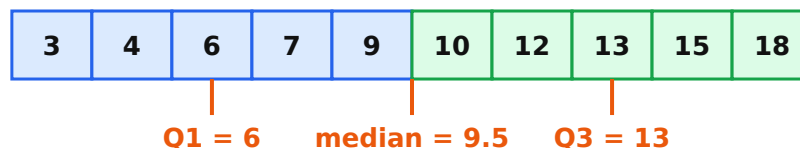
Order: 3, 4, 6, 7, 9, 10, 12, 13, 15, 18.

Median: $\frac{9+10}{2} = 9.5$.

Lower half 3, 4, 6, 7, 9 has median 6, so $Q_1 = 6$. Upper half 10, 12, 13, 15, 18 has median 13, so $Q_3 = 13$.

$$IQR = 13 - 6 = 7$$

Answers: $Q_1 = 6$, **median 9.5**, $Q_3 = 13$, **IQR 7**.



Solution figure.

Problem 11: Five-Number Summary

The data are in order, with 9 values. The median is the 5th value: 20.

Lower half (without the median): 11, 14, 15, 17. $Q_1 = (14+15) \div 2 = 14.5$.

Upper half: 22, 24, 27, 30. $Q_3 = (24+27) \div 2 = 25.5$.

Minimum: 11. Maximum: 30.

IQR: $25.5 - 14.5 = 11$

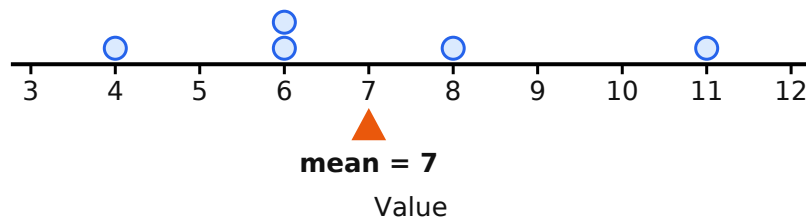
Problem 12: Find the MAD

Mean: $\frac{4+6+6+8+11}{5} = \frac{35}{5} = 7$.

Distances from 7: 3, 1, 1, 1, 4. Sum: $3+1+1+1+4 = 10$.

$MAD = 10 \div 5 = 2$

The MAD is **2**.



Solution figure.

Problem 13: MAD Step by Step

Step 1, the mean: $(2+6+7+9+11) \div 5 = 35 \div 5 = 7$.

Value	2	6	7	9	11
Distance from 7	5	1	0	2	4

Step 2: add the distances: $5+1+0+2+4 = 12$.

Step 3: divide by 5: $12 \div 5 = 2.4$

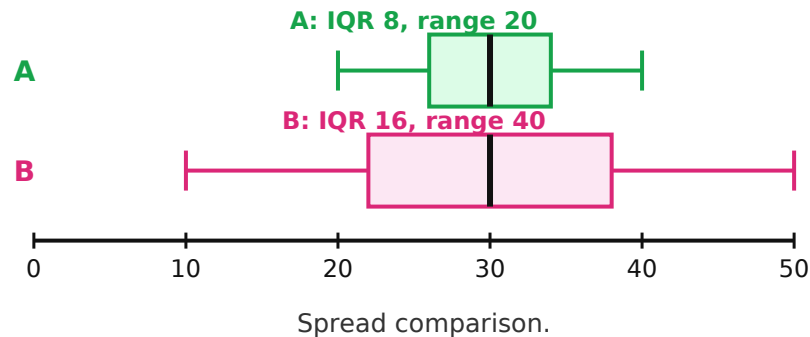
Problem 14: Comparing Two Box Plots

Centers: both medians are 30, so the typical score is the same.

Spreads: Player A has IQR $34 - 26 = 8$ and range $40 - 20 = 20$. Player B has IQR $38 - 22 = 16$ and

range $50 - 10 = 40$.

Player B has twice the spread of Player A. Player A has the narrower box and shorter whiskers, so **Player A is more consistent**.



Problem 15: Effect of an outlier

(a) Total: $88 + 92 + 90 + 86 + 94 + 30 = 480$. $480 \div 6 = 80$. The mean is **80**.

(b) Order: 30, 86, 88, 90, 92, 94. $\frac{88 + 90}{2} = 89$. The median is **89**.

(c) The **median** is better. The score 30 is an outlier that pulls the mean below five of the six scores.

Problem 16: Bowling Goal

A mean of 125 over 6 games needs a total of $6 \times 125 = 750$.

His first five games total $112 + 124 + 118 + 130 + 121 = 605$.

$$750 - 605 = 145$$

Liam needs a score of **145**.

Problem 17: Basketball consistency

(a) Maya: $\frac{64}{4} = 16$. Diego: $\frac{8 + 12 + 20 + 24}{4} = \frac{64}{4} = 16$. **Both means are 16.**

(b) Maya's distances: 2, 0, 0, 2, so $MAD = \frac{4}{4} = 1$. Diego's distances: 8, 4, 4, 8, so $MAD = \frac{24}{4} = 6$.

(c) **Maya** is more consistent because her MAD of 1 is much smaller than Diego's MAD of 6.

Problem 18: Commute Times

a. $22 + 25 + 24 + 23 + 26 + 24 + 25 + 23 = 192$ and $192 \div 8 = 24$ minutes.

b. The total for nine days is $192 + 60 = 252$, so the mean is $252 \div 9 = 28$ minutes. In order, 22,

23, 23, 24, **24**, 25, 25, 26, 60, so the median is **24** minutes.

- c. The 60-minute ride is an outlier that pulls the mean up by 4 minutes. The median stays at 24, so the **median** better describes a typical ride.

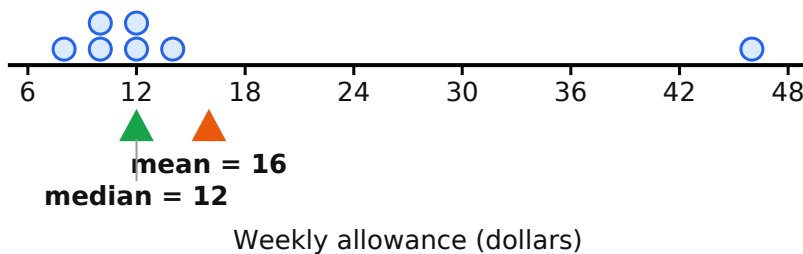
Problem 19: Allowance survey

(a) Total: $8+10+10+12+12+14+46=112$. $112 \div 7 = 16$. The mean is \$16.

(b) The 4th ordered value is \$12.

(c) The **median** is better, since \$46 is an outlier and the mean is higher than six of the seven values.

(d) Without \$46 the total is 66. $66 \div 6 = 11$. The mean is \$11.



Solution figure.

Problem 20: Swim Team Consistency

Noah: the total is 198, so the mean is $198 \div 6 = 33$ seconds. Distances from 33: 2, 0, 1, 1, 2, 0, which add to 6. MAD: $6 \div 6 = 1$ second.

Mei: the total is 198, so the mean is $198 \div 6 = 33$ seconds. Distances from 33: 3, 3, 3, 3, 0, 0, which add to 12. MAD: $12 \div 6 = 2$ seconds.

The means are equal, but Noah's MAD is smaller, so **Noah is more consistent**.