

Grade 7 - Comparing Two Populations - Test Answer Key

Common Core 7.SP.B.3, 7.SP.B.4 · maths-pdf.fr/en/

Use this answer key and scoring guide to grade the comparing populations test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

Grade 7 · Common Core State Standards: **7.SP.B.3, 7.SP.B.4**

Question 1 - Mean and median [2 pts]

Mean: $54 \div 6 = 9$.

Median: $(9+9) \div 2 = 9$.

mean 9; median 9

Scoring: 1 point for each.

Question 2 - MAD [2 pts]

Mean: 6. Distances: 4, 2, 0, 2, 4; sum 12.

$12 \div 5 = 2.4$

2.4

Scoring: 1 point for the mean and distances; 1 point for the MAD.

Question 3 - Compare dot plots [2 pts]

Team B is more spread out.

Range A: $9 - 5 = 4$. Range B: $13 - 3 = 10$.

Team B; ranges 4 and 10

Scoring: 1 point for the team with an explanation; 1 point for both ranges.

Question 4 - Quartiles [2 pts]

Lower half: 20, 22, 25, 28; $Q1 = (22+25) \div 2 = 23.5$.

Upper half: 30, 31, 35, 40; $Q3 = (31+35) \div 2 = 33$.

$IQR = 33 - 23.5 = 9.5$

$Q1 = 23.5$; $Q3 = 33$; $IQR = 9.5$

Scoring: 1 point for $Q1$ and $Q3$; 1 point for the IQR .

Question 5 - Compare box plots [2 pts]

Medians: 15 and 20; Plant B is 5 cm higher.

$IQRs$: $18 - 12 = 6$ and $23 - 17 = 6$, the same.

Plant B; equal $IQRs$

	Median	IQR
Plant A	15	6
Plant B	20	6

Summary.

Scoring: 1 point for the medians; 1 point for the $IQRs$ and conclusion.

Question 6 - Difference in MADs [2 pts]

$85 - 70 = 15$, and $15 \div 5 = 3$ MADs.

The groups are clearly different because the gap is large compared with the spread.

3 MADs

Scoring: 1 point for the multiple; 1 point for the meaning.

Question 7 - Informal inference [2 pts]

The medians differ by 6 minutes, about 1 IQR, so School A students probably travel longer.

Taking larger or repeated random samples would strengthen the conclusion.

School A students probably travel longer

Scoring: 1 point for the conclusion; 1 point for the strengthening step.

Question 8 - Two classes [3 pts]

- a. Class A: 84. Class B: 84.
- b. Class A: Q1 80, Q3 88, IQR 8. Class B: Q1 70, Q3 98, IQR 28.
- c. Class A, because its IQR is much smaller.

	Q1	Median	Q3	IQR
Class A	80	84	88	8
Class B	70	84	98	28

Five-number summary details.

Scoring: 1 point for each part.

Question 9 - Two runners [3 pts]

- a. $200 \div 5 = 40$ minutes for each.
- b. Runner 1: distances 5, 2, 0, 2, 5, sum 14, MAD $14 \div 5 = 2.8$. Runner 2: distances 12, 6, 0, 7, 11, sum 36, MAD $36 \div 5 = 7.2$.
- c. Runner 1 is more consistent because the MAD is smaller.

Scoring: 1 point for each part.

Total

20 points