

Sample Showdown

Compare typical values and spread.

GRADE 7 • NY-7.SP.4

NY-7.SP.4 "Use measures of center and measures of variability for quantitative data from random samples or populations to draw informal comparative inferences about the populations."

NAME _____

DATE _____

CENTER AND SPREAD

Order each data set before comparing it. The median is the middle value, and the range is the greatest value minus the least value. Use both measures to make an inference about the populations represented by the samples.

WORKED EXAMPLE

Random samples from Populations A and B gave these ordered values. A: 2, 5, 6, 8, 9. B: 3, 4, 7, 10, 11. Compare the medians and ranges.



1. The middle values are 6 for A and 7 for B.
2. Range of A: $9 - 2 = 7$.
3. Range of B: $11 - 3 = 8$.
4. B has a higher center, and A has less spread.

Answer: Population B likely has a higher typical value. Population A is slightly less variable.

PRACTICE 4 problems

- 1** Sample P: 12, 15, 15, 18, 20. Find the median and range.

ANSWER _____

- 2** Sample A: 13, 16, 17, 19, 22. Sample B: 14, 15, 18, 18, 21. Which sample has the higher median? Which has the smaller range?

ANSWER _____

- 3** Sample C: 24, 25, 27, 30, 34. Sample D: 23, 26, 28, 29, 31. Which sample is more consistent? Explain using range.

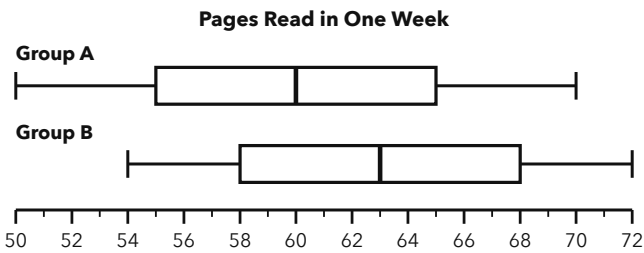
ANSWER _____

- 4** Sample E: 35, 38, 40, 41, 46. Sample F: 36, 37, 39, 43, 44. Write one inference about the populations.

ANSWER _____

APPLY IT Show your work

- 1** The box plots show pages read in one week by random samples of students in two reading groups. Which group likely reads more typical pages? Which group has less spread?



ANSWER _____

- 2** Two music apps survey random samples of students about songs saved this month. App A: 76, 80, 83, 86, 90. App B: 78, 79, 85, 87, 88. Which app's users likely save more songs? Which sample is more consistent?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Samples from Populations C and D have these ordered values. C: 92, 96, 100, 104, 108. D: 98, 99, 100, 101, 102. Both samples have median 100. Is that enough to say the populations are alike? Explain using range.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Sample P: 12, 15, 15, 18, 20. Find the median and range.	Median: 15. Range: 8.
2	Sample A: 13, 16, 17, 19, 22. Sample B: 14, 15, 18, 18, 21. Which sample has the higher median? Which has the smaller range?	Sample B has the higher median, 18 versus 17. Sample B has the smaller range, 7 versus 9.
3	Sample C: 24, 25, 27, 30, 34. Sample D: 23, 26, 28, 29, 31. Which sample is more consistent? Explain using range.	Sample D is more consistent because its range is 8, less than Sample C's range of 10.
4	Sample E: 35, 38, 40, 41, 46. Sample F: 36, 37, 39, 43, 44. Write one inference about the populations.	Sample E's population likely has a higher typical value, but Sample F's population is less variable.

PART 2 • APPLY IT

- Group B likely reads more typical pages because its median is 63, compared with 60. Group B has less spread because its range is 18, compared with 20.** Read the medians and endpoints from the box plots. Compare 63 to 60, then compare 72 - 54 to 70 - 50.
- App B's users likely save more songs because its median is 85, compared with 83. App B is more consistent because its range is 10, compared with 14.** Find each middle value and each range. App B has both the higher median and the smaller range.

CHALLENGE

No. Both samples have median 100, but Sample C has range 16 and Sample D has range 4. The populations may have the same typical value, but Sample C is more variable.

Accept equivalent wording that correctly compares medians and ranges. For inferences, accept cautious language such as likely or may, because the data are random samples.