LESSON MAKER PRO

Data in Context

Find what is typical and how much the data varies.

GRADE 6 · 6.SP.5c

6.SP.5c "Summarize numerical data sets in relation to their real-world context. Find quantitative measures of center (median, mode and mean) and variability (range and interquartile range). Describe any overall pattern (including outliers…"

NAME _____ DATE _____

CENTER AND SPREAD

To find the mean, add the values and divide by how many there are. The median is the middle value after sorting, and the mode is the value that appears most often. The range is the greatest value minus the least; the interquartile range (IQR) is Q3 minus Q1. For an odd number of values, leave out the overall median when finding Q1 and Q3.

WORKED EXAMPLE

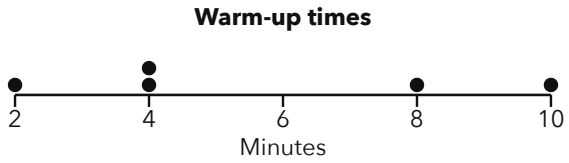
A student read this many pages on six evenings: 31, 33, 35, 37, 39, 41. Find the mean, median, mode, range, and IQR.

1. Add the values: 31 + 33 + 35 + 37 + 39 + 41 = 216. Mean = 216 / 6 = 36.
2. Median = (35 + 37) / 2 = 36. No value repeats, so there is no mode.
3. The lower half is 31, 33, 35, so Q1 = 33. The upper half is 37, 39, 41, so Q3 = 39.
4. Range = 41 - 31 = 10. IQR = 39 - 33 = 6.

Answer: Mean: 36 pages; median: 36 pages; no mode; range: 10 pages; IQR: 6 pages.

PRACTICE 6 problems

1 The dot plot shows minutes spent warming up before five games. Find the median and mode.



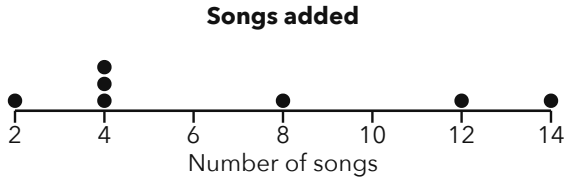
ANSWER _____

2 Five students practiced dance moves for 12, 14, 18, 20, and 26 minutes. Find the mean and range.

ANSWER _____

_____

3 The dot plot shows how many songs seven students added to a playlist. Find the mode and range.



ANSWER _____

_____

4 A club counted 5, 7, 9, 12, 14, 18, 22, 24, and 26 visitors on nine days. Find the IQR.

ANSWER _____

5 The dot plot shows minutes spent playing a video game on seven days. Which time stands apart from the others? Between which two times do most days cluster?



ANSWER _____

_____

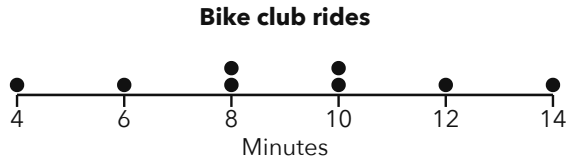
6 A player scored 40, 42, 44, 44, 46, 48, and 60 points in seven rounds. Find the range and IQR.

ANSWER _____

_____

APPLY IT Show your work

1 A bike club recorded the length of eight rides. The dot plot shows the ride times. Find the mean and IQR. What does each measure tell you about these rides?



ANSWER _____

2 Two friends tracked their points in six arcade rounds. Ari scored 20, 22, 24, 26, 28, and 30 points. Bo scored 18, 24, 24, 26, 26, and 50 points. Find each friend's median and IQR. Whose middle-half scores varied less?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student took 4, 6, 8, 10, 12, 14, and 16 minutes to finish seven puzzle-game rounds. Suppose the last time was 44 minutes instead of 16 minutes. Find the mean, range, and IQR before and after the change. Explain why one measure stayed the same.

WORK SPACE AND ANSWER

ANSWER KEY # Data in Context

GRADE 6 · 6.SP.5c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The dot plot shows minutes spent warming up before five games. Find the median and mode.	**Median: 4 minutes; mode: 4 minutes.**
2	Five students practiced dance moves for 12, 14, 18, 20, and 26 minutes. Find the mean and range.	**Mean: 18 minutes; range: 14 minutes.**
3	The dot plot shows how many songs seven students added to a playlist. Find the mode and range.	**Mode: 4 songs; range: 12 songs.**
4	A club counted 5, 7, 9, 12, 14, 18, 22, 24, and 26 visitors on nine days. Find the IQR.	**15 visitors.**
5	The dot plot shows minutes spent playing a video game on seven days. Which time stands apart from the others? Between which two times do most days cluster?	**44 minutes stands apart. Six of the seven days cluster from 20 to 28 minutes.**
6	A player scored 40, 42, 44, 44, 46, 48, and 60 points in seven rounds. Find the range and IQR.	**Range: 20 points; IQR: 6 points.**

PART 2 · APPLY IT

1. **The mean is 9 minutes, so the rides averaged 9 minutes. The IQR is 4 minutes, so the middle half of ride times spans 4 minutes.** The times add to 72, and 72 / 8 = 9. Q1 = 7 and Q3 = 11, so the IQR is 11 - 7 = 4.
2. **Ari: median 25 points, IQR 6 points. Bo: median 25 points, IQR 2 points. Bo's middle-half scores varied less.** Each median is (24 + 26) / 2 = 25. Ari's IQR is 28 - 22 = 6; Bo's is 26 - 24 = 2.

CHALLENGE

Before: mean 10 minutes, range 12 minutes, IQR 8 minutes. After: mean 14 minutes, range 40 minutes, IQR 8 minutes. The IQR stays the same because changing the greatest time does not change Q1 or Q3.

Accept equivalent descriptions of clusters and variability when they match the data. For an odd-sized data set, exclude the overall median when finding Q1 and Q3.