LESSON MAKER PRO

Data Detectives

Find center, spread, and shape.

GRADE 6 · TEKS 6.12.C

6.12.C "summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread..."

NAME _____ DATE _____

SUMMARIZE A DATA SET

Order the data first. The mean is the sum divided by the number of values, and the median is the middle value. The range is greatest minus least, and the IQR is Q3 minus Q1, using the middle value of each half of the ordered data.

WORKED EXAMPLE

Use the marked data values on the number line. Find the mean, median, range, and IQR.



1. Mean: (14 + 16 + 18 + 20 + 22) / 5 = 18.
2. Median: the middle value is 18.
3. Range: 22 - 14 = 8.
4. Q1 = 15 and Q3 = 21, so IQR = 21 - 15 = 6.

Answer: Mean 18, median 18, range 8, IQR 6.

PRACTICE 4 problems

1 Find the mean, median, range, and IQR: 1, 3, 5, 7, 9, 11, 13.

ANSWER _____

2 Find the mean, median, range, and IQR. Then describe the shape: 2, 4, 5, 5, 6, 6, 7, 9.

ANSWER _____

3 The mean of 4, 6, 8, 10, 12, and x is 8. Find x.

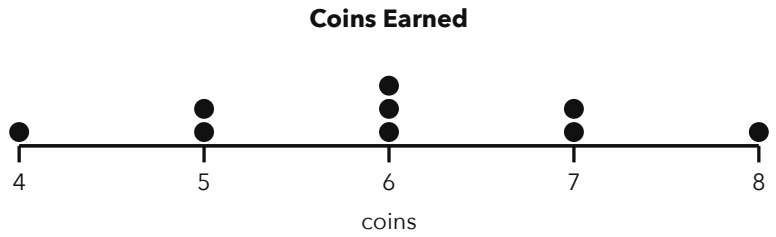
ANSWER _____

4 Set A has median 12 and IQR 2. Set B has median 12 and IQR 6. Which set has less spread? Explain.

ANSWER _____

APPLY IT Show your work

1 A gamer tracked the number of coins earned in nine rounds. Use the dot plot to find the mean, median, range, and IQR. Describe the shape.



ANSWER _____

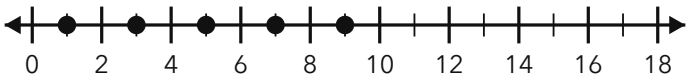
2 Two dance teams recorded practice minutes. Team A: 9, 11, 13, 15, 15, 17, 19, 21. Team B: 12, 13, 15, 15, 15, 15, 17, 18. Which team was more consistent? Use the median and IQR.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The number line shows five data values. A sixth value is added, and the new mean is 7. What value was added? Then find the new median and IQR.



WORK SPACE AND ANSWER

ANSWER KEY # Data Detectives

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the mean, median, range, and IQR: 1, 3, 5, 7, 9, 11, 13.	**Mean 7, median 7, range 12, IQR 8.**
2	Find the mean, median, range, and IQR. Then describe the shape: 2, 4, 5, 5, 6, 6, 7, 9.	**Mean 5.5, median 5.5, range 7, IQR 2. The distribution is symmetric.**
3	The mean of 4, 6, 8, 10, 12, and x is 8. Find x.	**x = 8**
4	Set A has median 12 and IQR 2. Set B has median 12 and IQR 6. Which set has less spread? Explain.	**Set A. Its IQR is smaller, so its middle half is less spread out.**

PART 2 · APPLY IT

1. **Mean 6, median 6, range 4, IQR 2. The distribution is symmetric.** The values total 54, and 54 / 9 = 6. Q1 is 5 and Q3 is 7, so the IQR is 2.
2. **Team B. Both medians are 15, but Team B's IQR is 2 and Team A's IQR is 6.** Team A has Q1 = 12 and Q3 = 18. Team B has Q1 = 14 and Q3 = 16, so Team B has less spread in its middle half.

CHALLENGE

The added value is 17. The new median is 6, and the IQR is 6.

Accept equivalent wording for symmetric and for less spread. For odd-sized data sets, use the common convention of excluding the median when finding Q1 and Q3.