

Data Shape Detectives

Read plots to find center, spread, and shape.

GRADE 6 • TEKS 6.12.B

6.12.B "use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;"

NAME _____

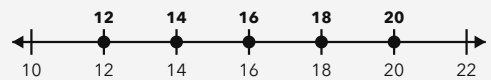
DATE _____

READ THE DISTRIBUTION

A distribution's center is a value near the middle, often the median. Its spread tells how far the data run from least to greatest, and its shape may be symmetric or may have a longer tail on one side.

WORKED EXAMPLE

Use the plotted data. Describe its center, spread, and shape.

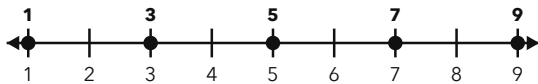


1. The middle plotted value is 16.
2. The median center is 16.
3. Range = $20 - 12 = 8$.
4. The values are balanced on both sides of 16, so the shape is symmetric.

Answer: Center: 16; spread: 8; shape: symmetric.

PRACTICE 6 problems

- 1** Use the plotted values. What are the median and the range?



ANSWER _____

- 2** Use the plotted values. Is the distribution roughly symmetric, skewed left, or skewed right?



ANSWER _____

- 3** The ordered data are 2, 4, 4, 5, 8. Find the median and range.

ANSWER _____

- 4** The ordered data are 1, 1, 3, 5, 5. Find the median and range. Then describe the shape.

ANSWER _____

- 5** Set A is 2, 3, 4, 5, 6. Set B is 0, 4, 4, 4, 8. Do the sets have the same median? Which set has the greater range?

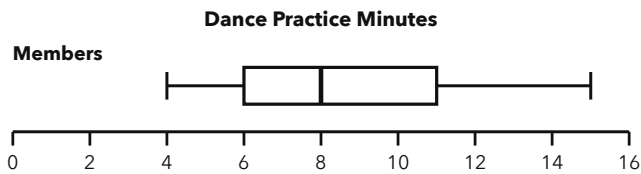
ANSWER _____

- 6** A distribution has a median of 6, a least value of 2, and a greatest value of 10. What is the range? Can you determine the shape from this information alone?

ANSWER _____

APPLY IT Show your work

- 1** A dance club made the box plot to show how many minutes members practiced a routine. What is the median practice time? What is the interquartile range, and what is the full range?



ANSWER _____

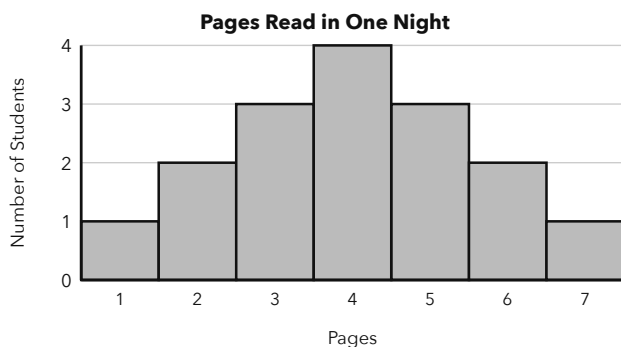
- 2** Two players tracked their points in five rounds of a video game. Player A scored 1, 3, 5, 7, 9. Player B scored 0, 5, 5, 5, 10. Use the median as the center and the range as the spread. Who was more consistent, and why?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The histogram shows pages read by students in one night. Describe the distribution's center, spread, and shape. Include a numerical center and range, and explain why the shape is symmetric.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Use the plotted values. What are the median and the range?	Median: 5; range: 8.
2	Use the plotted values. Is the distribution roughly symmetric, skewed left, or skewed right?	Skewed right.
3	The ordered data are 2, 4, 4, 5, 8. Find the median and range.	Median: 4; range: 6.
4	The ordered data are 1, 1, 3, 5, 5. Find the median and range. Then describe the shape.	Median: 3; range: 4; shape: symmetric.
5	Set A is 2, 3, 4, 5, 6. Set B is 0, 4, 4, 4, 8. Do the sets have the same median? Which set has the greater range?	Yes, both have a median of 4. Set B has the greater range, 8 compared with 4.
6	A distribution has a median of 6, a least value of 2, and a greatest value of 10. What is the range? Can you determine the shape from this information alone?	Range: 8. No, the shape cannot be determined from only the median, least value, and greatest value.

PART 2 • APPLY IT

- Median: 8 minutes; interquartile range: 5 minutes; full range: 11 minutes.** Read the median from the line inside the box. Subtract 6 from 11 for the interquartile range, and subtract 4 from 15 for the full range.
- Player A was more consistent. Both players have a median of 5, but Player A has a range of 8 and Player B has a range of 10.** Find the middle score for each player, then subtract the least score from the greatest score. The smaller range shows more consistent scores.

CHALLENGE

Center: 4 pages; range: 6 pages; shape: symmetric because the frequencies match at equal distances from 4.

Accept a correct statement that the challenge center is 4, using either the median or mean. For shape explanations, accept symmetric, balanced, or matching frequencies on both sides of the center.