LESSON MAKER PRO

Center and Spread

Compare data sets with mean, median, and range.

GRADE 7 · MA.7.DP.1.2

MA.7.DP.1.2 "Given two numerical or graphical representations of data, use the measure(s) of center and measure(s) of variability to make comparisons, interpret results and draw conclusions about the two populations."

NAME _____ DATE _____

COMPARE TWO SETS

Use a measure of center, mean or median, to describe a typical value. Use range, greatest minus least, to describe spread. Compare both before making a conclusion.

WORKED EXAMPLE

Compare A: 11, 14, 17 and B: 12, 14, 16.

1. Mean A = (11 + 14 + 17) / 3 = 14.
2. Mean B = (12 + 14 + 16) / 3 = 14.
3. Range A = 17 - 11 = 6; range B = 16 - 12 = 4.

Answer: The sets have the same mean, but B is less variable.

PRACTICE 5 problems

1 PRACTICE 1. Compare A: 4, 6, 8 and B: 5, 6, 7. Find each mean and range.

ANSWER _____

2 PRACTICE 2. Dot plots: A: 1(x), 2(xx), 3(x), 4(x). B: 2(xx), 3(xxx). Find the median of each set. Which set has the higher typical value?

ANSWER _____

3 PRACTICE 3. Compare C: 18, 19, 20, 21 and D: 15, 19, 20, 24. Find each mean and range.

ANSWER _____

4 PRACTICE 4. Compare E: 25, 25, 25, 25 and F: 23, 24, 26, 27. Which set is more consistent? Use range.

ANSWER _____

5 PRACTICE 5. A scores: 30(1), 31(3), 32(1). B scores: 29(1), 31(3), 33(1). Compare the means and ranges.

ANSWER _____

APPLY IT Show your work

1 Two groups record minutes spent reading each day. Group A: 24, 26, 28, 30, 32, 34. Group B: 20, 28, 29, 30, 31, 39. Find each mean and range. Which group reads more typically, and which group is more consistent?

WORK SPACE

ANSWER

2 Two players record practice drills completed on six days. Player A: 5, 6, 6, 7, 7, 8. Player B: 0, 6, 6, 7, 7, 13. Compare the means and ranges. What conclusion fits the data?

WORK SPACE

ANSWER

CHALLENGE One step up

Group G has 21, 22, 23, 24, 25. Group H has 21, 22, 23, 24, 40. A student says H has a higher typical value because its mean is higher. Do you agree? Use center and spread to explain.

WORK SPACE AND ANSWER

ANSWER KEY # Center and Spread

GRADE 7 · MA.7.DP.1.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	PRACTICE 1. Compare A: 4, 6, 8 and B: 5, 6, 7. Find each mean and range.	**Mean A = 6, range A = 4; mean B = 6, range B = 2. The means are equal, and B is less variable.**
2	PRACTICE 2. Dot plots: A: 1(x), 2(xx), 3(x), 4(x). B: 2(xx), 3(xxx). Find the median of each set. Which set has the higher typical value?	**Median A = 2; median B = 3. B has the higher typical value.**
3	PRACTICE 3. Compare C: 18, 19, 20, 21 and D: 15, 19, 20, 24. Find each mean and range.	**Mean C = 19.5, range C = 3; mean D = 19.5, range D = 9. The means are equal, and C is less variable.**
4	PRACTICE 4. Compare E: 25, 25, 25, 25 and F: 23, 24, 26, 27. Which set is more consistent? Use range.	**E is more consistent. Range E = 0 and range F = 4.**
5	PRACTICE 5. A scores: 30(1), 31(3), 32(1). B scores: 29(1), 31(3), 33(1). Compare the means and ranges.	**Mean A = 31, range A = 2; mean B = 31, range B = 4. The means are equal, and A is less variable.**

PART 2 · APPLY IT

1. **Mean A = 29, range A = 10; mean B = 29.5, range B = 19. Group B reads slightly more typically, but Group A is more consistent.** Add each group's minutes and divide by 6 for the mean. Subtract the least value from the greatest value for each range.
2. **Mean A = 6.5, range A = 3; mean B = 6.5, range B = 13. They have the same average, but Player A is much more consistent.** Each list has a total of 39, so each mean is 39 / 6 = 6.5. Compare the ranges to describe consistency.

CHALLENGE

It depends on the measure used. H has the higher mean (26 versus 23), so the mean-based comparison is correct. Both medians are 23. H has range 19 versus G's 4, driven by the value 40. The median is more resistant to that high value; explain which center best answers the question.

Accept equivalent comparison statements that correctly use the computed center and range. For the challenge, students should identify that the high value affects H's mean and range while both medians are 23. Do not reject a correctly qualified mean-based comparison. Require the chosen center and the effect of the high value to be explained.