ALBERT

Name _____ Date _____

Comparing Data Distributions Worksheet

Grade 7 · Common Core 7.SP.B.3

> Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.

Practice

Builds the skill step by step.

1. Team A's heights have a mean of 160 cm. Team B's heights have a mean of 172 cm. What is the difference between the means?

2. Two classes' quiz scores each have a MAD of 3 points. The means are 78 and 84. How many MADs apart are the means?

3. Two dot plots have the same spread. Plot A's mean is 20, and Plot B's mean is 21. Which describes the plots?

   A. They do not overlap at all.

   B. They are identical.

   C. They overlap a lot.

   D. They cannot overlap.

4. Find the mean of the data: 4, 6, 7, 9, 9

5. Find the mean absolute deviation (MAD) of the data: 4, 6, 7, 9, 9

6. Which measure describes how spread out a data set is?

   A. Mean

   B. Mean absolute deviation

   C. Median

   D. Mode

7. Class X reads a mean of 15 minutes a night, with a MAD of 2. Class Y reads a mean of 21 minutes, with a MAD of 2. How many MADs apart are the means?

8. Find the median of the data: 12, 15, 11, 18, 14, 20

9. Find the interquartile range (IQR) of the data: 2, 4, 5, 7, 8, 10, 12, 13

10. Box plot A has a median of 50 and an IQR of 10. Box plot B has a median of 52 and an IQR of 10. Which is true?

    A. The data sets do not overlap.

    B. All of B's values are higher.

    C. The data sets overlap a lot.

    D. A is more spread out.

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On Level

Grade-level practice.

1. The table shows the points two players scored in 5 games. Find each player's mean.

Game	1	2	3	4	5
Player A	10	12	14	16	18
Player B	16	18	20	22	24

2. The table shows the points two players scored in 5 games. Find each player's MAD.

Game	1	2	3	4	5
Player A	10	12	14	16	18
Player B	16	18	20	22	24

3. The table shows the points two players scored in 5 games. Each player's MAD is 2.4. The difference in means is how many MADs?

Game	1	2	3	4	5
Player A	10	12	14	16	18
Player B	16	18	20	22	24

4. Two data sets have the same mean. Set A has a MAD of 2, and Set B has a MAD of 8. Which is true?

   A. Set A's values are more spread out.

   B. Set B has larger values.

   C. The sets are identical.

   D. Set B's values are more spread out.

5. The table shows hours of sleep for two groups. Each group has a MAD of 0.4 hour. How many MADs apart are the group means?

Student	1	2	3	4	5
Group 1 (hours)	7	8	8	9	8
Group 2 (hours)	6	7	7	8	7

6. Class A's test scores have a median of 82 and an IQR of 12. Class B's have a median of 70 and an IQR of 12. Which statement is best?

   A. Every student in Class A scored higher than every student in Class B.

   B. Class B's scores are more spread out.

   C. Class A tended to score higher, but some scores overlap.

   D. The classes scored the same.

7. Find the mean and the MAD of the data: 2, 4, 6, 6, 8, 10

8. A basketball team's heights have a mean of 190 cm. A soccer team's have a mean of 175 cm. Both MADs are 5 cm. How many MADs apart are the means?

9. Two data sets have about the same spread. Their means are 3 or more MADs apart. What can you say?

   A. The distributions are the same.

   B. The distributions overlap a lot.

   C. The distributions have little overlap.

   D. The data must be wrong.

10. Set A is 12, 18, 25, 30. Set B is 15, 16, 20, 22. How much greater is Set A's range than Set B's?

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Challenge

Multi-step and word problems that stretch it.

1. The table shows scores for two classes. Each class has a MAD of 1. Find the difference in means as a multiple of the MAD.

Student	1	2	3	4	5	6
Class 1	5	6	7	7	8	9
Class 2	8	9	10	10	11	12

2. Two data sets each have a MAD of 4. Their means differ by 2. Which describes them?

   A. They do not overlap at all.

   B. One set has twice as many values.

   C. Their means are 2 MADs apart.

   D. They overlap a lot, because the difference is small compared with the spread.

3. Set A has a mean of 45 and a MAD of 6. Set B has the same MAD. Its mean is 2.5 MADs above Set A's mean. What is Set B's mean?

4. The data are 10, 12, 15, 15, 18. What value must be added so the mean of all six values is 15?

5. The table shows plant growth with and without fertilizer. The MADs are 1.6 cm and 1.2 cm. Find the difference in means, and write it as a multiple of the larger MAD.

Plant	1	2	3	4	5
With fertilizer (cm)	8	10	11	12	14
Without (cm)	5	6	7	8	9

6. Box plot A has a median of 30 and an IQR of 8. Box plot B has a median of 30 and an IQR of 20. Which is true?

   A. A is more spread out.

   B. B has a higher center.

   C. They have the same center, but B is more spread out.

   D. The data sets are the same.

7. The mean of 6 numbers is 14. Five of them are 10, 12, 15, 16 and 18. What is the sixth number?

8. A data set has a mean of 20 and a MAD of 3. Every value is increased by 5. What are the new mean and the new MAD?

9. Player A's scores have a mean of 18 and a MAD of 1. Player B's have a mean of 18 and a MAD of 6. A coach needs a player who scores close to 18 every game. Who should she pick?

   A. Player A, because her scores vary less

   B. Player B, because her scores vary more

   C. Either player, because the means are the same

   D. Neither player

10. Find the median and IQR of the data: 21, 25, 18, 30, 27, 24, 19, 26