LESSON MAKER PRO

Compare the Groups

Use means and MADs to compare data.

GRADE 7 · 7A.DSP.B.28

7A.DSP.B.28 "Make informal comparative inferences about two populations using measures of center and variability and/or mean absolute deviation in context."

NAME _____ DATE _____

THE BIG IDEA

The mean describes a typical value. The mean absolute deviation, or MAD, is the average distance from the mean. A smaller MAD means the values are more consistent.

WORKED EXAMPLE

Compare the means and MADs of groups A and B.

GROUP VALUES

A	B
11	20
13	22
15	24
17	26

1. Means: (11 + 13 + 15 + 17)/4 = 14; (20 + 22 + 24 + 26)/4 = 23.
2. MADs: (3 + 1 + 1 + 3)/4 = 2 for each group.
3. Compare the means and MADs.

Answer: B has the higher mean, 23 versus 14. Both MADs are 2.

PRACTICE 4 problems

1 A: 2, 4, 6, 8. B: 3, 5, 7, 9. Find both means. Which is higher?

ANSWER _____

2 A: 1, 3, 5, 7. B: 4, 4, 4, 4. Find both MADs. Which is greater?

ANSWER _____

3 A: 2, 2, 6, 6. B: 3, 3, 5, 5. Both means are 4. Which group is more consistent? Give both MADs.

ANSWER _____

4 A: 3, 3, 5, 5. B: 2, 4, 6, 8. Find each mean and MAD. Which has the higher mean? Which is more consistent?

ANSWER _____

APPLY IT Show your work

1 These are minutes spent waiting for two buses to soccer practice. Both buses average 7 minutes. Which bus has more consistent wait times? Use MAD.

BUS WAIT TIMES IN MINUTES

Bus A	Bus B
4	6
6	6
8	8
10	8

ANSWER _____

2 Two Wi-Fi networks have these game response times in milliseconds. Which network has the lower mean? Compare their MADs, too.

GAME RESPONSE TIMES IN MILLISECONDS

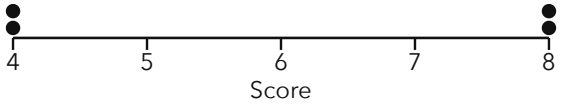
Network A	Network B
3	6
5	8
7	10
9	12

ANSWER _____

CHALLENGE One step up

Mode A's game scores are shown. Mode B has a mean of 7 and a MAD of 3. Which mode has the higher mean? Which is more consistent? Use both measures to explain.

Mode A game scores



WORK SPACE AND ANSWER

ANSWER KEY

Compare the Groups

GRADE 7 · 7A.DSP.B.28

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A: 2, 4, 6, 8. B: 3, 5, 7, 9. Find both means. Which is higher?	**A: 5; B: 6. B has the higher mean.**
2	A: 1, 3, 5, 7. B: 4, 4, 4, 4. Find both MADs. Which is greater?	**A: 2; B: 0. A has the greater MAD.**
3	A: 2, 2, 6, 6. B: 3, 3, 5, 5. Both means are 4. Which group is more consistent? Give both MADs.	**A: 2; B: 1. B is more consistent.**
4	A: 3, 3, 5, 5. B: 2, 4, 6, 8. Find each mean and MAD. Which has the higher mean? Which is more consistent?	**A: mean 4, MAD 1. B: mean 5, MAD 2. B has the higher mean; A is more consistent.**

PART 2 · APPLY IT

1. **Bus B. Its MAD is 1 minute, compared with 2 minutes for Bus A.** Find each wait time's distance from 7 and average the four distances. Bus B has the smaller MAD.
2. **Network A has the lower mean, 6 milliseconds versus 9 milliseconds. Both MADs are 2 milliseconds.** Average each network's four times, then average the distances from each mean.

CHALLENGE

Mode B has the higher mean, 7 versus 6. Mode A is more consistent: its MAD is 2, which is less than Mode B's MAD of 3.

Accept equivalent comparisons that state the correct means or MADs requested. A lower MAD indicates greater consistency.