LESSON MAKER PRO

Measure the Spread

Find the standard deviation of a full data set.

HIGH SCHOOL · GDA.DSP.C.10.b

GDA.DSP.C.10.b "Calculate the standard deviation for a data set, using technology where appropriate."

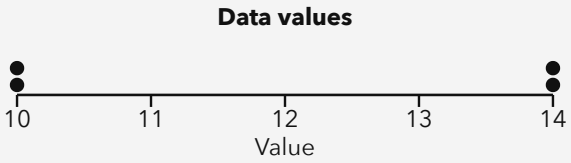
NAME _____ DATE _____

THE RULE

For a full data set, find the mean, then square each value's distance from the mean. Add the squares, divide by the number of values, and take the square root.

WORKED EXAMPLE

Find the standard deviation of the data shown.



1. Mean = (10 + 10 + 14 + 14)/4 = 12.
2. Squared distances: 4 + 4 + 4 + 4 = 16.
3. Divide: 16/4 = 4. Take the square root: sqrt(4) = 2.

Answer: 2

PRACTICE 4 problems

1 Find the standard deviation: 1, 1, 5, 5.

ANSWER _____

2 Find the standard deviation: 2, 2, 8, 8.

ANSWER _____

3 Find the exact standard deviation: 4, 8, 12, 16.

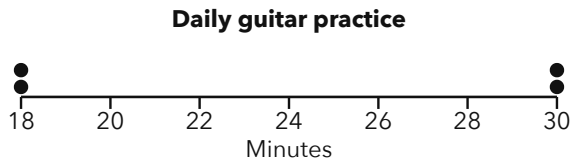
ANSWER _____

4 Find the exact standard deviation: 0, 0, 0, 8.

ANSWER _____

APPLY IT Show your work

1 Your daily guitar practice times are shown. Find their standard deviation in minutes.



ANSWER _____

2 Four video uploads get 40, 40, 56, and 56 likes. Find the standard deviation of the likes.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Four game scores are 3, 3, 9, and 9. Each score gains 5 points. Find the standard deviation before and after the bonus. Explain in one sentence why it changes or stays the same.

WORK SPACE AND ANSWER

ANSWER KEY

Measure the Spread

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the standard deviation: 1, 1, 5, 5.	**2**
2	Find the standard deviation: 2, 2, 8, 8.	**3**
3	Find the exact standard deviation: 4, 8, 12, 16.	**2sqrt(5)**
4	Find the exact standard deviation: 0, 0, 0, 8.	**2sqrt(3)**

PART 2 · APPLY IT

1. **6 minutes** The mean is 24 minutes. Each time is 6 minutes from the mean, so the standard deviation is 6 minutes.
2. **8 likes** The mean is 48 likes. Each count is 8 likes from the mean, so the standard deviation is 8 likes.

CHALLENGE

Both standard deviations are 3 points because adding 5 to every score leaves each score's distance from the mean unchanged.

Accept sqrt(20) for 2sqrt(5) and sqrt(12) for 2sqrt(3). Use division by the number of values, not one less.