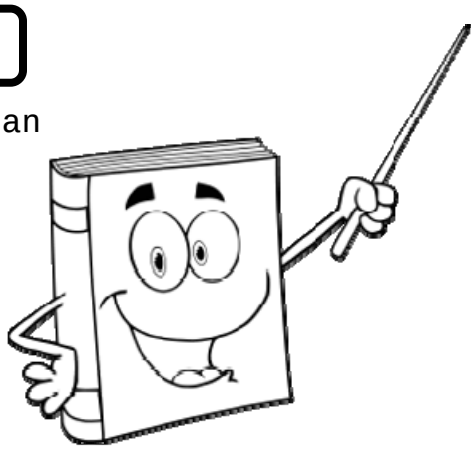
Name _____ Date _____

Comparing Two Data Sets - Step-by-Step Lesson



An English teacher is trying to determine if the help of an after school tutor helps improve test scores. Class 1 has the help of an after school tutor. Class 2 does not have a tutor. Based on the data is there any reason to believe that Class 1 has an advantage with a tutor?

Class 1:

45, 32, 48, 71, 55, 47, 69, 62, 40, 80, 75, 55, 73, 64, 84, 95, 37, 78, 75

Class 2:

47, 55, 59, 85, 88, 84, 68, 74, 66, 90, 60, 70, 91, 74, 87, 97, 77, 69, 55

Explanation:

By looking at three statistics we can gauge subtle differences between two sets of data. We will start with mean and median. This will give us an idea of how well the students performed.

Class 1: Mean = 62.4, Median = 64 Class 2: Mean =73.5, Median = 74

Class 2 performed better overall, but it does not explain if Class would have performed much worse without a tutor.

It stands to reason that students that were improving would have scores that were closely related as a group. Standard deviation can help us see how tightly grouped the scores were. This will help us see that if the group as a whole performed at the same level.

$s = \sqrt{\frac{\sum(x - \overline{x})^2}{N - 1}}$	s = standard deviation x = each value in the sample $\overline{x}$ = the mean of values N = population

Class 1: Standard Deviation = 17.59 Class 2: Standard Deviation = 14.29

Class 1 displays more variation than Class 2. As a result, class 1 did not see any advantage with the help of a tutor.