

Section 6B: Homework Solutions

9. Does the following make sense: For the 30 students who took the test, the high score was 80, the median was 74, and the low score was 40.

Solution:

This statement makes sense, and could potentially happen.

□

17. U.S. president data:

Solution:

a) The mean of the First 7 data is about 58.29 years,. The median is 57 years. The range is 4 years. The mean of the Last 7 data is about 57.43 years, obtained by dividing the sum of numbers by 7. The median of 56 years is the middle number when arranged in ascending order. The range is 23 years.

□

b) The five number summary for the First 7 is (57, 57, 57, 61, 61). The five number summary for the Last 7 is (46, 52, 56, 64, 69).

□

c) For each number in the set, the deviation is the difference between it and the mean. To find the standard deviation for the First 7 data, sum the squares of the deviations to get 21.43, divide by one less than the number of numbers, which is 6 in our case, and then take the square root. This is the standard deviation and is about 1.89 years.

For the Last 7 numbers, the sum of the squares of the deviations is 363.72. After dividing by 6 and taking the square root, the standard deviation is seen to be about 7.793 years.

□

d) The range rule of thumb suggests the standard deviation is about one quarter of the range. For the First 7 data this is 1 year and for the Last 7 data it is 5.75 years. Both numbers are underestimates for the actual standard deviation.

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e) The ages of the First 7 U.S. presidents was on average no different than the Last 7, but the variation is much smaller.

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