

AP Statistics - Mean, Median, Standard Deviation and Outliers - Worksheet

Common Core AP STAT 1.6, AP STAT 1.7, HSS-ID.A.2, HSS-ID.A.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice AP Statistics topics 1.6 and 1.7. You will compute the mean, median, range, IQR, and standard deviation, apply the 1.5 IQR rule, and explain how outliers and unit changes affect each measure.

AP Statistics · Common Core State Standards: **AP STAT 1.6, AP STAT 1.7, HSS-ID.A.2, HSS-ID.A.3**

Exercise 1 - Compute a mean

Maya scored 12, 15, 9, 14, 20 points in five games. Find her mean score.

Exercise 2 - Median of an odd list

Jamal recorded the minutes of practice for seven days: 23, 17, 31, 26, 19, 28, 22. Find the median.

Exercise 3 - Median of an even list

Find the median of 8, 12, 5, 9, 14, 6.

Exercise 4 - Find the missing value

Five test scores have mean 84. Four of the scores are 90, 78, 85, and 81. Find the fifth score.

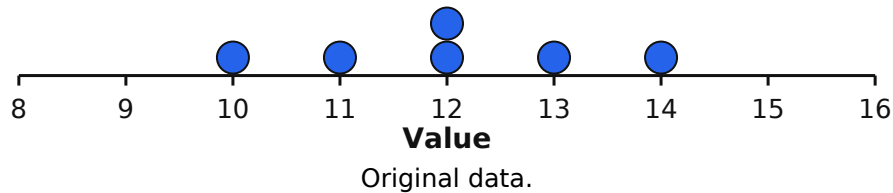
Exercise 5 - Range and IQR

Sofia's nine essay lengths (pages): 4, 6, 7, 9, 10, 12, 13, 15, 18. Find the range, Q1, Q3, and IQR.

Exercise 6 - Standard deviation by hand

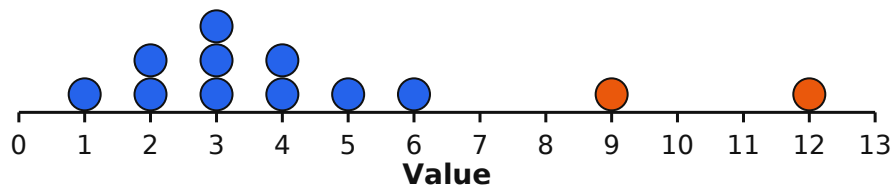
Find the standard deviation of 3, 5, 7, 9, 11. Round to two decimal places.

Exercise 7 - Effect of an outlier



The data are 10, 11, 12, 12, 13, 14. A typing error changes 14 to 140. Find the mean and median before and after.

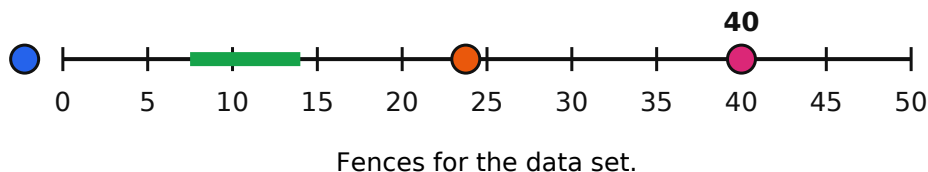
Exercise 8 - Mean versus median



In skewed data the mean is pulled toward the tail, so mean > median here.

The dotplot of 12 values has a median of 3.5. Without calculating, is the mean greater than, less than, or about equal to 3.5? Then compute it.

Exercise 9 - 1.5 IQR rule



Use the 1.5 IQR rule on 5, 7, 8, 9, 10, 12, 13, 15, 40. Which values are outliers?

Exercise 10 - Resistant statistics

For each statistic, state whether it is resistant: mean, median, IQR, range, standard deviation.

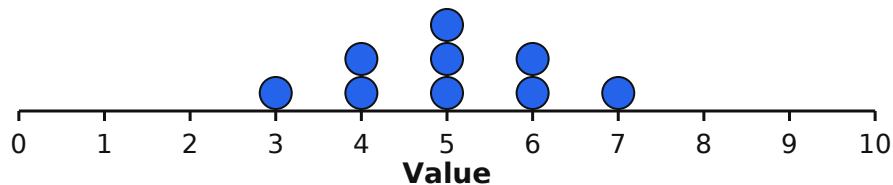
Exercise 11 - Add a constant

A teacher adds 5 bonus points to every score. The scores had mean 72, median 74, standard deviation 8, and IQR 11. Find the new values.

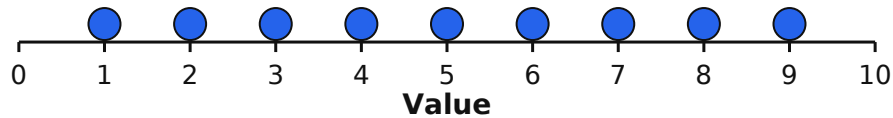
Exercise 12 - Multiply by a constant

Temperatures in °C have mean 20 and standard deviation 3. The conversion is $F = 1.8C + 32$. Find the mean and standard deviation in °F.

Exercise 13 - Compare spreads



Data set A.



Data set B.

Both data sets have mean 5. Which has the larger standard deviation? Check by computing both.

Exercise 14 - Mean from a frequency table

Pets	0	1	2	3
Students	5	8	6	6

Pets owned by 25 students.

Find the mean number of pets and the median.

Exercise 15 - Which measure to report?

The salaries (in thousands) at a small company are 42, 45, 47, 48, 50, 52, 250. Find the mean and median and say which better describes a typical salary.

Exercise 16 - Combine two means

Class A has 20 students with mean 80. Class B has 30 students with mean 90. Find the mean of all 50 students.

Exercise 17 - Required score

Aisha's first four test scores are 72, 78, 85, and 77. What must she score on the fifth test to have a mean of at least 80?

Exercise 18 - Full summary

Commute times (minutes) for ten workers: 14, 15, 15, 16, 17, 18, 19, 21, 22, 41. Find the five-number summary, the IQR, the fences, and any outliers.

Exercise 19 - Describe with statistics

Weights (pounds) of nine dogs: 52, 55, 58, 60, 61, 63, 65, 70, 95. The mean is 64.3 and the median is 61. Explain what the difference tells you about the shape and which statistic to use.

Exercise 20 - Adding a value

The data 20, 22, 25, 25, 28 have mean 24 and median 25. A sixth value, 50, is added. Find the new mean and median and say which changed more.