

Comparing Two Data Sets with Variability

Grade 7 math · Test · Standards: 7.SP.B.3, 7.SP.B.4

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points on comparing two data sets with centers and variability. Allow 45 minutes, show your work for each mean, MAD and IQR, and use the number line for the box plot.

Standards: 7.SP.B.3, 7.SP.B.4 · **Level:** Grade 7

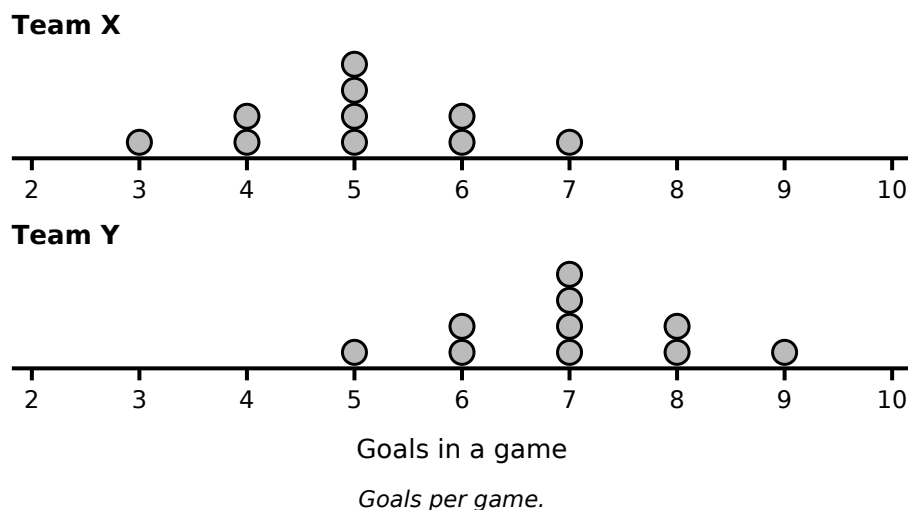
Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Mean and MAD (2 points)

The numbers of books five students read this month are 14, 18, 12, 16 and 20. (a) Find the mean. (1 point) (b) Find the mean absolute deviation. (1 point)

Question 2 Two dot plots (3 points)

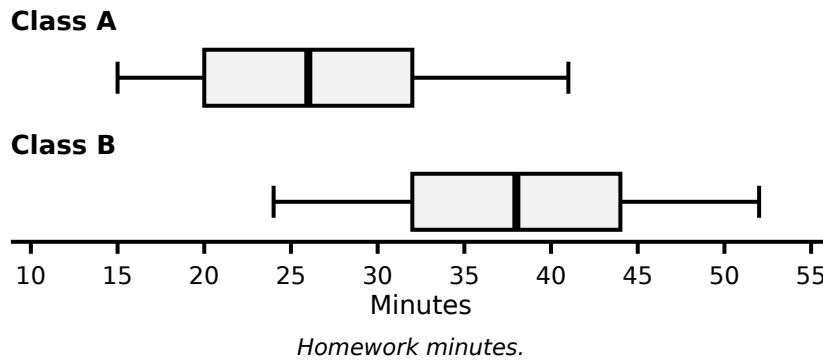
The dot plots show the number of goals scored in ten games by two teams.



- Find the mean for each team. (1 point)
- Find the MAD of Team X. Team Y has the same shape and the same MAD. (1 point)
- Write the difference of the means as a multiple of the MAD. (1 point)

Question 3 Two box plots (3 points)

Homework times were recorded for 25 students in each of two classes, and the box plots show the minutes spent.



- Find the median of each class. (1 point)
- Find the IQR of each class. (1 point)
- Write the difference of the medians as a multiple of the IQR. (1 point)

Question 4 Quartiles from a list (2 points)

Find the median and the IQR of 4, 7, 9, 12, 15, 18, 22. (1 point each)

Question 5 Cookie weights (3 points)

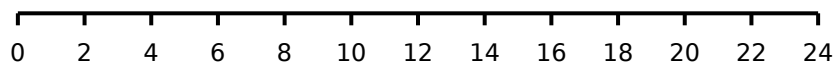
The weights in grams of six cookies from Bakery A are 28, 30, 31, 29, 30, 32, and from Bakery B are 33, 35, 36, 34, 35, 37. (a) Find the mean of each bakery. (1 point) (b) Find the MAD of each bakery. (1 point) (c) Write the difference of the means as a multiple of the MAD. (1 point)

Question 6 Same median, different spread (2 points)

Two sets of data both have a median of 50. Set 1 has an IQR of 4 and Set 2 has an IQR of 20. Which set is more consistent? Explain. (2 points)

Question 7 Draw a box plot (3 points)

Draw a box plot on the number line for a data set with least value 5, Q1 9, median 12, Q3 16 and greatest value 22. Then find the range and the IQR. (3 points)



Draw the box plot above this number line.

Question 8 Two teams (2 points)

Team G has a mean score of 62 and Team H has a mean score of 72. Each team has a MAD of 5. (a) The difference of the means is how many MADs? (1 point) (b) Do the teams differ noticeably? Explain. (1 point)