

9.12 Box Plots

Chapter 9: Statistics and Data Analysis

Name: _____

Date: _____

Class/Period: _____

Problem 9.177 A five-number summary is (2, 5, 9, 14, 20). Draw a box plot on a scale from 0 to 22 and label every summary value.

Problem 9.180 For summary (3, 10, 12, 14, 30), identify the narrowest quarter and explain what a narrow interval says about concentration.

Problem 9.178 A box extends from 12 to 27. Find the IQR and explain why the box represents the middle half of the ordered data.

Problem 9.181 Explain why a box plot cannot reveal the exact mode, even when the median line is visible.

Problem 9.179 For summary (1, 4, 6, 15, 18), calculate the width of each quarter and identify the widest one.

Problem 9.182 Explain why the mean cannot usually be read from a basic box plot.

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Problem 9.183 Create two different data sets that share the same five-number summary and therefore the same box plot.

Problem 9.186 Construct a box plot for 0, 7, 15, 20, 22, 24, 27, 35, 38, 42. Show your five-number summary first.

Problem 9.184 A box plot has a very long right whisker. Describe the skew it suggests and state why this is a visual clue rather than proof.

Problem 9.187 A box plot has minimum 5, median 18, maximum 40, and IQR 16. Give one possible quartile pair and verify the ordering.

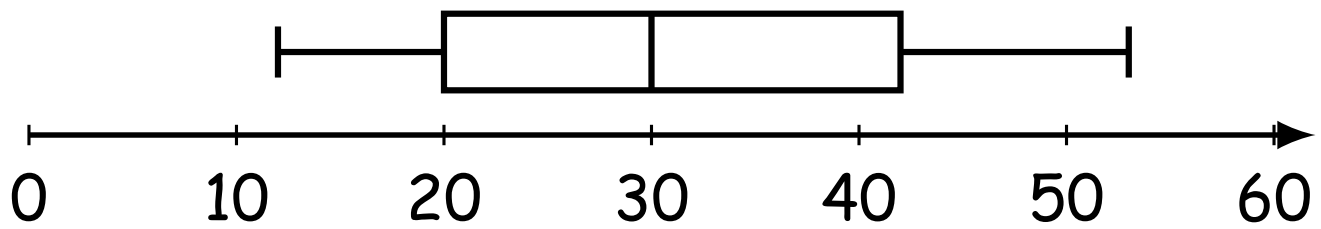
Problem 9.185 Two box plots are drawn with different numerical scales. Explain why comparing their apparent widths is invalid.

Problem 9.188 Explain why a longer whisker does not mean that whisker contains more observations than a shorter quarter.

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Problem 9.189 Study the box plot.

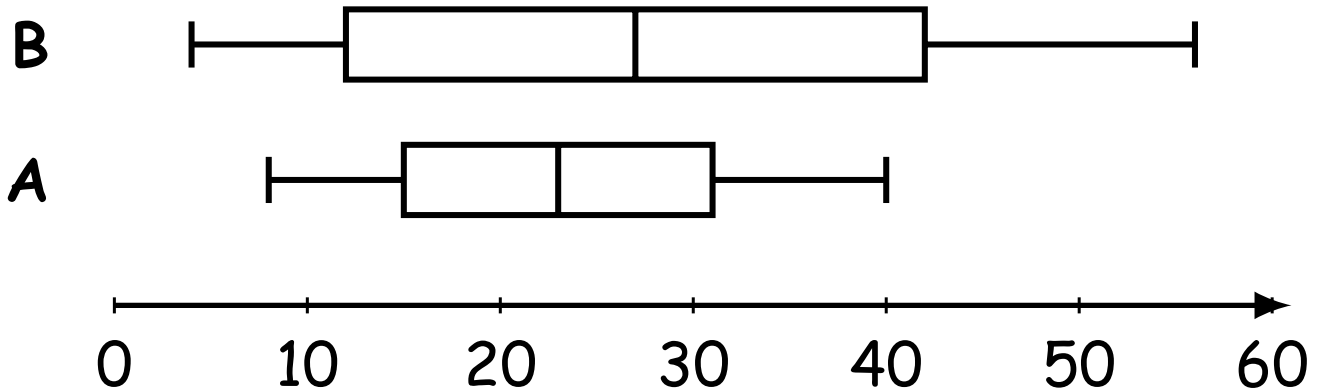


Estimate the five-number summary, identify the widest quarter, and state what percent of observations lie in the box.

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Problem 9.190 Compare the two groups.



Which group has the higher median? Which has the smaller IQR? Write one complete comparison using center and spread.

Problem 9.191 Using the same diagram, which group has the greater range? A student says the longer box contains more observations. Explain the mistake.

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Problem 9.192 Construct two distributions with the same box plot, one with values crowded near quartiles and one with values spread within quarters. Explain what the diagram hides.