

9.13 Comparing Distributions

Chapter 9: Statistics and Data Analysis

Name: _____

Date: _____

Class/Period: _____

Problem 9.193 Group A has median 12 and Group B has median 18. State what can be concluded about their middle values and what cannot be concluded about variability.

Problem 9.196 Two classes have equal means. Name at least three other features that could make their distributions very different.

Problem 9.194 Group A has IQR 4 and Group B has IQR 11. Which middle half is more variable? Explain without claiming anything about the medians.

Problem 9.197 Explain why side-by-side graphs must use the same numerical scale before visual spread is compared.

Problem 9.195 Group A has MAD 2 and Group B has MAD 7. Compare consistency around each group's mean.

Problem 9.198 One group is symmetric and another is strongly right-skewed. Write one comparison that describes shape without making claims about performance.

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Problem 9.199 Explain why IQR naturally pairs with median and MAD naturally pairs with mean.

Problem 9.202 Two histograms use different bin widths. Explain why apparent peaks and gaps should be compared cautiously.

Problem 9.200 Class A has mean 84 and MAD 5. Class B has mean 80 and MAD 2. Compare typical performance and consistency in one complete sentence.

Problem 9.203 Construct two five-number summaries with equal medians but very different spread. Describe the contrast they would show.

Problem 9.201 Store A wait times have median 7 and IQR 3. Store B has median 5 and IQR 12. Which is faster typically, and which is more predictable?

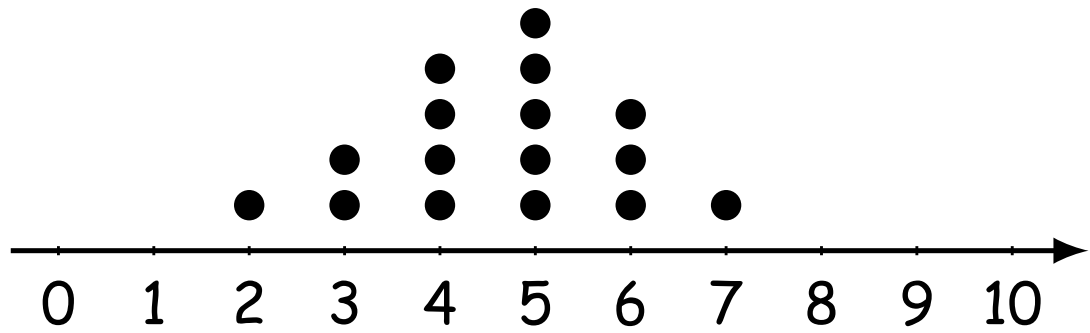
Problem 9.204 Write a comparison sentence that includes center, spread, shape, and one unusual feature.

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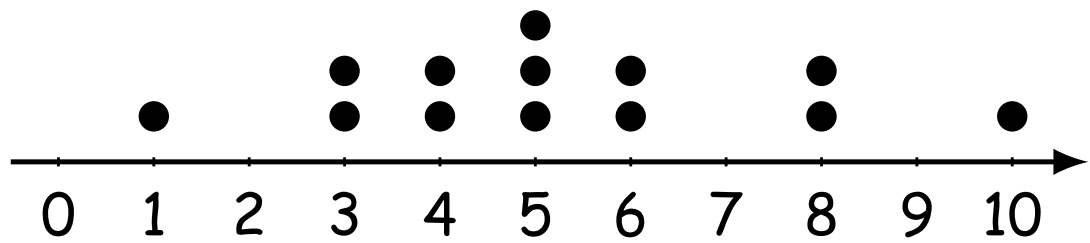
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Problem 9.205 Compare the line plots.

Class A



Class B

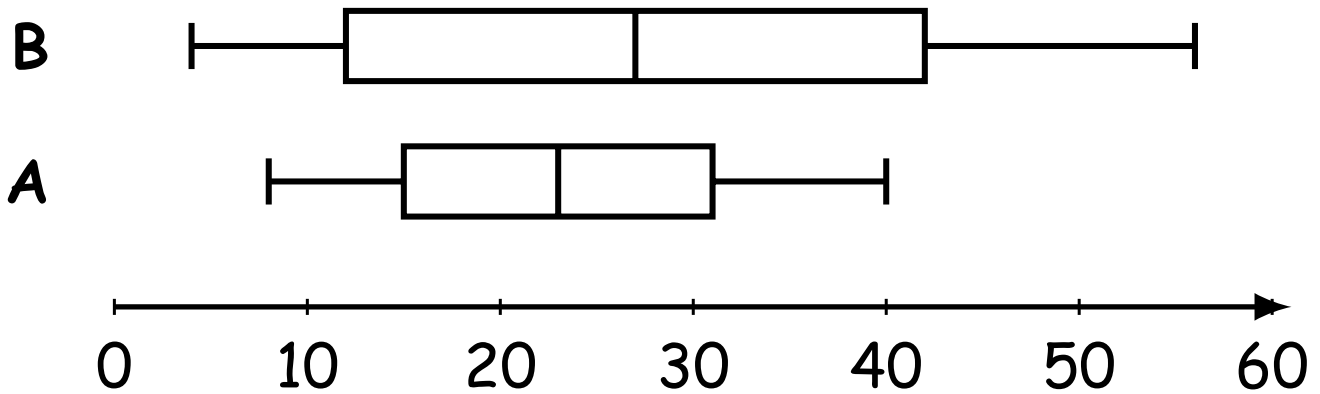


Which class is more concentrated? Which has the larger range? What additional calculation would help compare their centers precisely?

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Problem 9.206 Compare the box plots.



Write a two-sentence report that compares median, IQR, and range without claiming that either group is "better" outside a stated context.

Problem 9.207 Group A is transformed by adding 5 to every value. If its mean is 20 and MAD is 3, find the new mean and MAD. Explain the transformation visually as a shift.

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Problem 9.208 Group B is formed by doubling every value of Group A. If Group A has median 12 and IQR 7, find Group B's median and IQR and explain why both scale.