Interpreting box and whisker plots (CSSI)

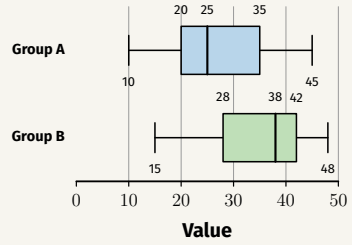
Read the five-number summary and IQR, then apply the 75%/50% rule to judge real differences.

Name _____ **Date** _____

The 75%/50% rule

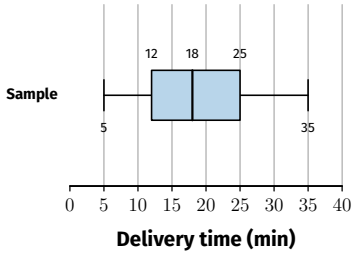
A box plot shows the five-number summary: minimum, lower quartile (LQ), median, upper quartile (UQ), and maximum. The IQR (UQ − LQ) is the middle 50% of the data. If one group's median sits *outside* the other group's IQR, that's evidence of a real difference between the groups; if it sits *inside*, the difference could just be normal variation.

Worked example Is Group B's median inside or outside Group A's IQR? Is there evidence of a real difference?



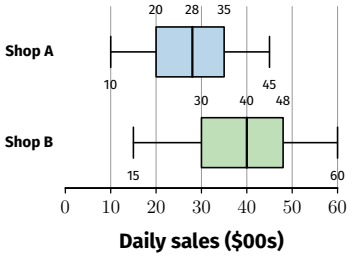
Group A's IQR is 20 to 35. Group B's median (38) is **outside** this range. Yes – this is evidence of a real difference between the groups.

1. Read the five-number summary and calculate the IQR.



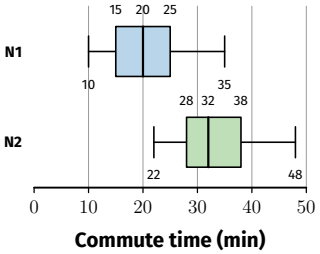
Working

2. Which shop has the higher median, and which has the larger IQR?



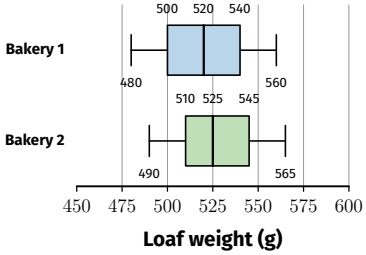
Working

3. Is Neighbourhood 2's median inside or outside Neighbourhood 1's IQR? Evidence of a real difference?



Working

4. Is Bakery 2's median inside or outside Bakery 1's IQR? What does this suggest?



Working

Interpreting box and whisker plots (CSSI) (continued)

Read the five-number summary and IQR, then apply the 75%/50% rule to judge real differences.

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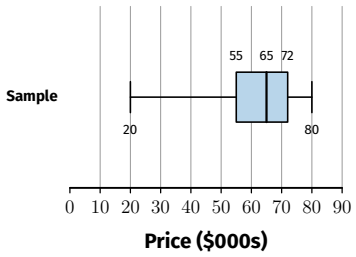
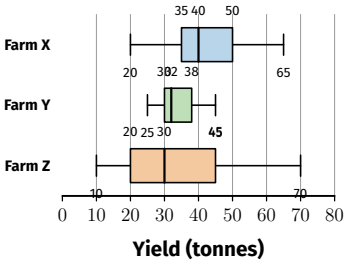
5. Describe this data's shape (symmetrical/skewed) and justify using the box and whiskers.



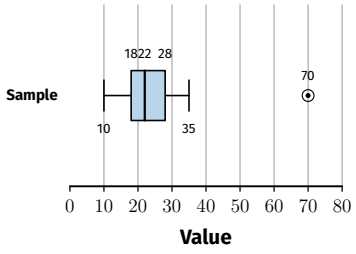
Working

6. Which farm's yields are most consistent (smallest IQR)?



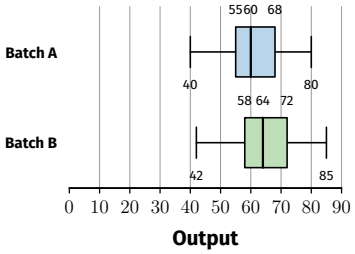
Working

7. An outlier of 70 is shown. Does it change the median or the IQR? Explain.



Working

8. A salesperson says Batch B is "definitely better" since $64 > 60$. Using the rule, why is this too strong?



Working