

## **Box And Whisker Plot Worksheet**

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Part 1: Building a Foundation
What is the primary purpose of a box and whisker plot?
Hint: Think about what information this type of plot conveys.
<ul> <li>A) To show the frequency of data points</li> <li>B) To display the distribution of a data set</li> <li>C) To compare two different data sets</li> <li>D) To calculate the mean of a data set</li> </ul>
Which of the following are components of a box and whisker plot? (Select all that apply)
Hint: Consider the key elements that make up the plot.
<ul><li>□ A) Mean</li><li>□ B) Median</li></ul>
☐ C) Lower Quartile (Q1) ☐ D) Upper Quartile (Q3)
Describe what the 'whiskers' in a box and whisker plot represent.
Hint: Think about the range of the data outside the quartiles.

List the steps to calculate the interquartile range (IQR) of a data set.

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Hint: Consider the process of finding quartiles.
1. Step 1: Arrange the data in ascending order.
2. Step 2: Find Q1 (the first quartile).
3. Step 3: Find Q3 (the third quartile).
4. Step 4: Calculate IQR.
Part 2: Understanding and Interpretation
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If the median of a data set is closer to the lower quartile than the upper quartile, what does this indicate about the data distribution?
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indicate about the data distribution?  Hint: Think about the symmetry of the data.  A) The data is skewered to the right  B) The data is skewered to the left  C) The data is symmetric  D) The data has no skew  Which statements are true about the interquartile range (IQR)? (Select all that apply)  Hint: Consider the properties of the IQR.  A) It measures the spread of the middle 50% of the data  B) It is affected by outliers  C) It is calculated as Q3 minus Q1

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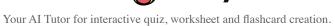
Hint: Think about the visual representation of data points.



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Part 3: Application and Analysis	
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Given a data set with the following values: 3, 7, 8, 12, 13, 14, 18, 21, 23, 27, what is	the median?
Hint: Remember how to find the median in a sorted list.	
○ A) 12	
○ B) 13	
○ C) 14	
OD) 15	
You have a box and whisker plot with a median of 50, Q1 of 30, and Q3 of 70. Which statements are true? (Select all that apply)	h of the following
Hint: Consider the definitions of median, Q1, and Q3.	
A) The interquartile range is 40	
☐ B) The plot is symmetric	
C) The minimum value is 30	
D) The maximum value is 70	
Create a box and whisker plot for the following data set: 5, 7, 8, 12, 15, 18, 22, 24, 3 step of your process.	0. Describe each
Hint: Think about how to organize and visualize the data.	
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data?
Hint: Consider the implications of whisker length.
○ A) The data is skewered to the left
○ B) The data is skewered to the right
○ C) The data is symmetric
O D) The data has no skew
Part 4: Evaluation and Creation
Which of the following changes would most likely reduce the interquartile range of a data set?
Hint: Think about how data points affect the spread.
A) Adding more data points at the extremes
○ B) Removing outliers
C) Increasing the number of data points in the middle range
O) Decreasing the overall number of data points
Consider a box and whisker plot that represents the ages of participants in a study. If the median age is significantly lower than the mean age, what might this suggest? (Select all that apply)
Hint: Think about the implications of the relationship between median and mean.
A) The data is skewered to the right
B) There are several young outliers
C) The data is skewered to the left
D) There are several older outliers
Design a box and whisker plot for a hypothetical data set that represents a scenario of your choice. Explain your choice of data points and the story they tell.
Hint: Think creatively about the data you want to represent.

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