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Worksheet Box And Whisker Plots Answer Key PDF

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Part 1: Building a Foundation

What is the primary purpose of a box and whisker plot?

undefined. A) To show the mean of a dataset

undefined. B) To display the distribution of data through quartiles ✓

undefined. C) To compare two datasets

undefined. D) To show the frequency of data points

The primary purpose of a box and whisker plot is to display the distribution of data through quartiles.

Which of the following are components of a box and whisker plot? (Select all that apply)

undefined. A) Mean

undefined. B) Median ✓

undefined. C) Lower Quartile (Q1) ✓

undefined. D) Upper Quartile (Q3) ✓

The components of a box and whisker plot include the median, lower quartile (Q1), and upper quartile (Q3).

Explain what the interquartile range (IQR) represents in a box and whisker plot.

The interquartile range (IQR) represents the range between the lower quartile (Q1) and the upper quartile (Q3), indicating the spread of the middle 50% of the data.

List the five-number summary components of a box and whisker plot.

1. Minimum

The smallest value in the dataset.

2. Lower Quartile (Q1)

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The median of the lower half of the dataset.

3. Median

The middle value of the dataset.

4. Upper Quartile (Q3)

The median of the upper half of the dataset.

5. Maximum

The largest value in the dataset.

The five-number summary components are the minimum, lower quartile (Q1), median, upper quartile (Q3), and maximum.

Part 2: Comprehension and Application

If the median line in a box plot is closer to the lower quartile, what does this suggest about the data distribution?

undefined. A) The data is positively skewered

undefined. B) The data is negatively skewered ✓

undefined. C) The data is symmetrical

undefined. D) The data has no skew

If the median line is closer to the lower quartile, it suggests that the data is negatively skewered.

Which of the following statements about outliers in a box plot are true? (Select all that apply)

undefined. A) Outliers are data points that fall outside the whiskers. ✓

undefined. B) Outliers are always included in the calculation of the median.

undefined. C) Outliers can indicate variability in the data. ✓

undefined. D) Outliers are always marked with a distinct symbol. ✓

Outliers are data points that fall outside the whiskers, can indicate variability, and are marked with a distinct symbol.

Create a box and whisker plot for the following dataset: 4, 8, 15, 16, 23, 42. Explain each step in your process.

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To create the box and whisker plot, first order the data, find the five-number summary, and then draw the plot.

You have a dataset with the following values: 3, 7, 8, 5, 12, 14, 21, 13, 18. Which of the following are correct steps to find the IQR? (Select all that apply)

undefined. A) Order the data from smallest to largest ✓

undefined. B) Find the median of the entire dataset ✓

undefined. C) Calculate the median of the lower half and upper half of the dataset ✓

undefined. D) Subtract the lower quartile from the upper quartile ✓

The correct steps to find the IQR include ordering the data, finding the median, and calculating the quartiles.

Part 3: Analysis, Evaluation, and Creation

If a box plot shows a long whisker on the upper side, what can be inferred about the data?

undefined. A) The data is negatively skewered

undefined. B) The data is positively skewered ✓

undefined. C) The data is symmetrical

undefined. D) The data has no outliers

A long whisker on the upper side suggests that the data is positively skewered.

Analyze a box plot that shows a dataset with a median closer to the upper quartile and explain what this indicates about the data distribution.

A median closer to the upper quartile indicates that the data distribution is negatively skewered, with more values concentrated in the lower range.

Which of the following scenarios would most benefit from using a box and whisker plot?

undefined. A) Comparing the average scores of two classes

undefined. B) Understanding the distribution of salaries in a company ✓

undefined. C) Display the frequency of a single data point

undefined. D) Showing the total sales of a product over time

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Understanding the distribution of salaries in a company would benefit most from using a box and whisker plot.

Design a real-world scenario where a box and whisker plot would be useful. Describe the dataset, what you would analyze, and how the plot would help in decision-making.

A box and whisker plot could be useful in analyzing test scores across different schools to identify performance disparities and inform educational strategies.

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