Box Plot Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is a box plot also known as?

undefined. A) Histogram

undefined. B) Pie Chart

undefined. C) Box-and-Whisker Plot ✓

undefined. D) Scatter Plot

A box plot is also known as a box-and-whisker plot.

Which component of a box plot represents the middle value of the dataset?

undefined. A) Lower Quartile

undefined. B) Median ✓

undefined. C) Upper Quartile

undefined. D) Whiskers

The median represents the middle value of the dataset in a box plot.

List the main components of a box plot.

1. First component

_____

2. Second component

_____

3. Third component

_____

4. Fourth component

_____

5. Fifth component

_____

The main components include the minimum, lower quartile, median, upper quartile, and maximum.

Which part of the box plot indicates the spread of the middle 50% of the data?

undefined. A) Whiskers
undefined. B) Median
undefined. C) Interquartile Range ✓
undefined. D) Outliers

The interquartile range indicates the spread of the middle 50% of the data.

True or False: Outliers in a box plot are data points that fall within the whiskers.

undefined. A) True
undefined. B) False ✓
undefined. C) Not Sure
undefined. D) Depends on the context

False. Outliers are data points that fall outside the whiskers.

Part 2: Understanding and Interpretation

Explain the significance of the whiskers in a box plot.

The whiskers represent the range of the data outside the interquartile range, indicating variability.

How does a box plot help in identifying outliers?

A box plot helps identify outliers by showing data points that fall outside the whiskers.

Which of the following statements about box plots is true?

undefined. A) Box plots show the frequency of data points.
undefined. B) Box plots provide a compact summary of data distribution. ✓

undefined. C) Box plots cannot identify outliers.
undefined. D) Box plots are less informative than histograms.

The true statements are that box plots provide a compact summary of data distribution.

Part 3: Application and Analysis

Given a dataset, calculate the median, quartiles, and IQR, then sketch a box plot.

Provide the calculated median, quartiles, IQR, and a sketch of the box plot.

You have two datasets. Use box plots to compare their distributions and identify any differences in variability.

Discuss the differences in distributions and variability based on the box plots.

Which dataset likely has more variability based on the following box plot descriptions?

undefined. A) Dataset A: IQR = 5, Whiskers extend from 2 to 12
undefined. B) Dataset B: IQR = 8, Whiskers extend from 1 to 15 ✓
undefined. C) Both datasets have the same variability
undefined. D) Cannot determine without more information

Dataset B likely has more variability due to a larger IQR.

Analyze the box plot of a dataset and determine if the data is skewered. Explain your reasoning.

Analyze the box plot to determine skewness based on the median and whisker lengths.

Part 4: Evaluation and Creation

Evaluate the advantages and disadvantages of using box plots for data analysis.

Discuss the pros and cons of using box plots in data analysis.

Design a real-world scenario where a box plot would be the most effective tool for data analysis. Explain your choice.

Provide a scenario where box plots effectively summarize data distribution.

Critically assess a given box plot and suggest improvements or additional analyses that could provide more insights.

Assess the box plot and suggest ways to enhance its informative value.