

Practice and Revision - Measures of Central Tendency (Mean, Median, Mode)

Chapter 24: Measures of Central Tendency (Mean, Median, Mode) · Topic 2

Key Concept

For grouped data, mean is calculated using the formula involving class midpoints and frequencies, often using the direct or step-deviation method.

Median for grouped data is found using the formula: $\text{Median} = l + \left[\frac{(n/2 - cf)}{f} \right] \times h$, where l is the lower boundary of the median class.

Mode for grouped data uses the formula: $\text{Mode} = l + \left[\frac{(f_{\text{modal}} - f_{\text{prev}})}{(2f_{\text{modal}} - f_{\text{prev}} - f_{\text{next}})} \right] \times h$, based on the frequencies of the modal class and its neighbours.

Understanding these measures for both ungrouped and grouped data helps us analyse and summarise different types of statistical data.

Quick Revision Notes

- Grouped data mean uses class midpoints and frequencies.
- Methods: direct or step-deviation method.
- Median formula: $l + \left[\frac{(n/2 - cf)}{f} \right] \times h$.
- l is the lower boundary of the median class.
- Mode formula: $l + \left[\frac{(f_{\text{modal}} - f_{\text{prev}})}{(2f_{\text{modal}} - f_{\text{prev}} - f_{\text{next}})} \right] \times h$.
- This uses modal class and neighbouring frequencies.
- These work for grouped data.
- Understanding all three helps comprehensive data analysis.

Practice Questions

- 1 Calculate the mean for a grouped dataset.
- 2 Calculate the median for the same grouped dataset.
- 3 Calculate the mode for the same grouped dataset.
- 4 Discuss why these three measures might differ.
- 5 Create a frequency distribution table and analyse it.
- 6 Explain the median formula in your own words.