Your notes

GCSE Statistics: revision notes

Averages

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Mean, median and mode

- The **mean** = total of the values ÷ number of values. The **mean** of 3, 5, 7, 9 and 11 is 35 ÷ 5 = 7.
- The **median** is the middle value when the data is in order. For n values, it is at position (n + 1) ÷ 2, so for 25 values it is the 13th.
- The **mode** is the most common value. There can be more than one **mode**, or none.

Averages from tables

- From a frequency table: **mean** = Σfx ÷ Σf. For x = 0, 1, 2, 3 with f = 4, 6, 8, 2, Σfx = 28 and Σf = 20, so the **mean** is 1.4.
- For grouped data, estimate the **mean** using class midpoints. It is only an estimate because the exact values are unknown.
- The **modal class** is the class with the highest frequency. Find the class containing the **median** by counting to the (n + 1) ÷ 2 position.

Weighted and geometric means

- A **weighted mean** gives some values more importance. With coursework worth 40% (score 70) and an exam worth 60% (score 80): 0.4 × 70 + 0.6 × 80 = 28 + 48 = 76.
- The **geometric mean** of n values is the nth root of their product. It is used for growth rates. The **geometric mean** of 4 and 9 is √36 = 6.

Choosing an average

- The **mean** uses all the data but is affected by extreme values.
- The **median** isn't affected by extreme values, so it is better for skewed data such as incomes.

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- The **mode** is the only average for qualitative data, and shows the most popular choice.

Key terms

Mean	The total of the values divided by the number of values.
Median	The middle value when data is in order.
Mode	The most common value.
Modal class	The class with the highest frequency.
Weighted mean	A mean where some values count more than others.
Geometric mean	The nth root of the product of n values.
Σ	The symbol meaning "the sum of".

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What is the mean of 3, 5, 7, 9 and 11?
2. What is the median of 4, 8, 1, 9, 6?
3. For 25 ordered values, which position is the median?
4. x = 0, 1, 2, 3 with frequencies 4, 6, 8, 2. What is the mean?
5. Why is the mean from grouped data only an estimate?
6. Which average is best for skewed data such as incomes?
7. Coursework (40%) scored 70 and the exam (60%) scored 80. What is the weighted mean?
8. What is the geometric mean of 4 and 9?

Answers

1. 7
2. 6
3. 13th
4. 1.4
5. The exact values are unknown, so midpoints are used
6. The median
7. 76
8. 6

What to do next

Practise 10 questions on this topic

Try 3 exam questions, with mark schemes

Read the lesson, one step at a time

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