

1.9 Comparing Distributions of a Quantitative Variable

Name: _____ Class: _____ Date: _____

Total: 9 marks

Objective

Build the skills to answer exam questions on **comparing distributions of a quantitative variable**.

You must be able to:

- compare two or more distributions using **parallel boxplots** 并列箱线图
- compare the **shape**, **center**, and **spread** of the groups explicitly
- use comparative language, always **in context** 结合背景

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ Comparing groups

Use **parallel boxplots** (or back-to-back displays) to compare distributions. Compare **shape**, **center**, and **spread** —and state each comparison **explicitly**.

■ Comparative language in context

Say things like "Class A's median score is **higher than** Class B's" or "Group X is **more variable than** Group Y", always referring to the real-world context so the comparison means something.

2 Practice

2.1 Name a graph useful for comparing two distributions. [1]

2.2 State the three features to compare between the groups. [2]

2.3 State why comparisons should be made "in context". [1]

3 Exam-style questions

3.1 To compare two distributions, you can use [1]

- **A** a single pie chart
 - **B** parallel boxplots
 - **C** one dotplot
 - **D** a z -score
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3.2 When comparing groups, you should compare shape, center, and [1]

- **A** colour
 - **B** spread
 - **C** the total
 - **D** the category
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3.3 Two classes' test scores are shown with parallel boxplots.

- (a) Name one feature to compare. [1]
- (b) Give an example of comparative language. [1]
- (c) State why context matters in the comparison. [1]

4 Go further

- work through the **1.9 Comparing Distributions of a Quantitative Variable** lesson on the **Learn** page;
- read the **Exploring One-Variable Data** section of the AP Statistics handout on the **Know** page.

Solutions

2.1 parallel boxplots.

2.2 shape, center, spread.

2.3 so the comparison is meaningful and refers to the real situation.

3.1 B.

3.2 B.

3.3 (a) shape, center, or spread (any one). (b) e.g. "Class A's median is higher than Class B's". (c) so the comparison relates to the actual data being studied.