

1.6 Describing the Distribution of a Quantitative Variable

Name: _____ Class: _____ Date: _____

Total: 9 marks

KEY WORDS shape 形状 • mean 均值 • skewed 偏斜 • outliers 离群值 • center 中心

Objective

Build the skills to answer exam questions on **describing the distribution of a quantitative variable**.

You must be able to:

- describe the **shape** 形状 as symmetric, skewed left, or skewed right
- identify the **center** 中心 and the **spread** 离散程度
- locate **clusters**, **gaps**, and possible **outliers** 离群值

1 Worked examples

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

■ Shape, center, spread

Always describe a distribution's **shape**, **center**, and **spread** — and note any distinctive features.

■ Shape

- **Symmetric** — roughly a mirror image.
- **Skewed right** — a long tail to the **right**.
- **Skewed left** — a long tail to the **left**.

■ Features

Look for **clusters** (groups), **gaps** (empty regions), and **outliers** (values far from the rest).

2 Practice

2.1 State the three features you should describe for any distribution.

[2]

2.2 Describe what “skewed right” means. [1]

2.3 Define an outlier. [1]

3 Exam-style questions

3.1 A distribution with a long tail to the right is [1]

- **A** symmetric
 - **B** skewed left
 - **C** skewed right
 - **D** uniform
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3.2 When describing a distribution you should mention shape, center, and [1]

- **A** colour
 - **B** spread
 - **C** the mean only
 - **D** the category
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3.3 A histogram has its peak on the left and a long right tail.

(a) Name the shape. [1]

(b) Name one other feature you should describe. [1]

(c) Define an outlier. [1]

Solutions

2.1 shape, center, spread.

2.2 it has a long tail extending to the right (higher values).

2.3 a value that is far from the rest of the data.

3.1 C.

3.2 B.

3.3 (a) skewed right. (b) center or spread (or clusters/gaps/outliers). (c) a value far from the rest of the data.