

Exercise walk-through

Representing a Quantitative Variable with Graphs ■ 1.5

eXercise

You must be able to

- display a quantitative variable with a **histogram** 直方图, **dotplot** 点图, or **stem-and-leaf plot** 茎叶图
- choose an appropriate number of **bins** 组距 for a histogram
- use a **cumulative relative frequency graph** 累积相对频数图 (ogive) to estimate percentiles

Method — Graphs for quantitative data

A **histogram**, **dotplot**, or **stem-and-leaf plot** shows the distribution of a numerical variable.

Method — Bins

A histogram groups values into **bins** (intervals). Too few bins hide the shape; too many make it look choppy — choose enough to reveal the shape.

Method — Ogive

A **cumulative relative frequency graph** (ogive) rises to 1 and lets you read off **percentiles**.

Practice 2.1 ■ 2 marks

Name two graphs for a quantitative variable.

Solution 2.1

Method: Graphs for quantitative data

Worked steps

any two of: histogram, dotplot, stem-and-leaf plot **B1** **B1**.

Practice 2.2 ■ 1 mark

State what the bins of a histogram are.

Solution 2.2

Method: Bins

Worked steps

the intervals into which the values are grouped **B1**.

Practice 2.3 ■ 1 mark

State what an ogive is used to estimate.

Solution 2.3

Worked steps

percentiles **B1**.

Exam-style 3.1 ■ 1 mark

A graph for a quantitative variable is a

A bar chart

B pie chart

C histogram

D two-way table

Solution 3.1

Method: Graphs for quantitative data

- A bar chart
- B pie chart
- C histogram 
- D two-way table

Worked steps

C.

Exam-style 3.2 ■ 1 mark

A cumulative relative frequency graph (ogive) is used to estimate

A the mode

B percentiles

C categories

D colours

Solution 3.2

Method: Ogive

A the mode

B percentiles



C categories

D colours

Worked steps

B.

Exam-style 3.3 ■ 1 mark

Data on exam marks is to be displayed.

- (a) Name a suitable graph.
- (b) State what using too few bins might hide.
- (c) Name the graph used to read percentiles.

Solution 3.3

Method: Ogive

Worked steps

(a) a histogram (or dotplot) **B1**. (b) the shape of the data **B1**. (c) an ogive (cumulative relative frequency graph) **B1**.