

1.3 Representing a Categorical Variable with Tables

Name: _____ Class: _____ Date: _____

Total: 9 marks

KEY WORDS relative frequency 相对频率 • two-way table 双向表 • proportion 比例
 • frequency table 频数表 • relative frequencies 相对频数

Objective

Build the skills to answer exam questions on **representing a categorical variable with tables**.

You must be able to:

- summarise a categorical variable with a **frequency table** 频数表
- calculate **relative frequencies** 相对频数 (proportions or percentages)
- build a **two-way table** 双向表 for two categorical variables

1 Worked examples

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

■ Frequency and relative frequency

A **frequency table** lists the count in each category. A **relative frequency** is that count as a proportion of the total:

$$\text{relative frequency} = \frac{\text{count in category}}{\text{total}}.$$

■ Two-way tables

A **two-way (contingency) table** shows **two** categorical variables together — one across the rows, one across the columns — so you can study their relationship.

2 Practice

2.1 State what a frequency table shows.

[1]

2.2 In a class of 25, 10 prefer tea. Find the relative frequency (proportion) who prefer tea. [2]

2.3 State what a two-way table displays. [1]

3 Exam-style questions

3.1 A relative frequency is a [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** count
B proportion or percentage
C total
D graph

3.2 A two-way table displays [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** one categorical variable
B two categorical variables together
C a histogram
D a mean

3.3 In a survey of 40 people, 12 answered "yes".

(a) Find the relative frequency of "yes". [2]

(b) State what a two-way table would add to this summary. [1]