

Exercise walk-through

C9.1

Classifying statistical data

IGCSE Mathematics

You must be able to

- Classify categorical, discrete and continuous data
- Organise counts in frequency and two-way tables
- Check totals and explain why a classification fits a variable

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The method

Method — Key knowledge: Classifying statistical data

Classify numerical data as discrete (counted values) or continuous (measured values). Categories such as colours are not numerical. A tally records one mark per observation, grouped in fives; frequency is the total tally count. A two-way table classifies each observation in two ways. Row totals, column totals and the grand total must agree.

Exercises 2.1·2.3

2.1 Classify number of siblings and a measured height as discrete or continuous. [2]

2.2 Create a frequency table for 1, 2, 1, 3, 2, 1, 2, 2. [2]

2.3 A tally row has two complete groups of five and three extra strokes. Find the frequency. [2]

Exercises 2.1-2.3

2.1 Classify number of siblings and a measured height as discrete or continuous. [2]

2.1

- Siblings are counted: **discrete**. Height is measured: **continuous**.
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2.2 Create a frequency table for 1, 2, 1, 3, 2, 1, 2, 2. [2]

2.2

- Count occurrences: **1: 3; 2: 4; 3: 1**. Total is 8.
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2.3 A tally row has two complete groups of five and three extra strokes. Find the frequency. [2]

2.3

- $f = 2(5) + 3 = \mathbf{13}$.

Exercise 2.4

2.4 A two-way table has row totals 18 and 22. One column total is 17. Find the other column total. [2]

3 Exam-style questions

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3 Exam-style questions

2.4

- $N = 18 + 22 = 40$; other column $f = 40 - 17 = \mathbf{23}$.

Exercise 3.1 (a)

3.1 Apply the classifying statistical data methods below. Show working and include units where appropriate.

(a) In a survey, 9 boys and 7 girls cycle; 6 boys and 8 girls walk. Make a two-way table with row and column totals. [2]

Exercise 3.1 (a)

3.1 Apply the classifying statistical data methods below. Show working and include units where appropriate.

(a) In a survey, 9 boys and 7 girls cycle; 6 boys and 8 girls walk. Make a two-way table with row and column totals. [2]

(a)

- **Boys: cycle 9, walk 6, total 15; girls: cycle 7, walk 8, total 15; column totals 16, 14, 30.**

Exercise 3.1 (b)

3.1 Apply the classifying statistical data methods below. Show working and include units where appropriate.

(b) Find the number of students surveyed.

[2]

Exercise 3.1 (b)

3.1 Apply the classifying statistical data methods below. Show working and include units where appropriate.

(b) Find the number of students surveyed.

[2]

(b)

- $N = 9 + 7 + 6 + 8 = \mathbf{30}.$

Exercise 3.1 (c)

3.1 Apply the classifying statistical data methods below. Show working and include units where appropriate.

(c) Three more girls who walk join the survey. Give the new girls total and new walking total. [2]

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(c) Three more girls who walk join the survey. Give the new girls total and new walking total. [2]

(c)

- Girls total $G = 15 + 3 = \mathbf{18}$; walk total $W = 14 + 3 = \mathbf{17}$.

Exercise 3.2 (a)

3.2 A survey records bus or walk to school. Year 7 has 12 bus and 8 walk; Year 8 has 9 bus and 11 walk.

(a) Make a two-way table including row totals, column totals and the grand total. [3]

Exercise 3.2 (a)

3.2 A survey records bus or walk to school. Year 7 has 12 bus and 8 walk; Year 8 has 9 bus and 11 walk.

(a) Make a two-way table including row totals, column totals and the grand total. [3]

(a)

- Year totals are **20 and 20**.
- Bus and walk totals are **21 and 19**.
- Complete the labelled table with grand total **40**.

Exercise 3.2 (b)

3.2 A survey records bus or walk to school. Year 7 has 12 bus and 8 walk; Year 8 has 9 bus and 11 walk.

(b) Classify travel method, number of siblings and journey time to the nearest minute. Explain the classification of the time variable. [3]

Exercise 3.2 (b)

3.2 A survey records bus or walk to school. Year 7 has 12 bus and 8 walk; Year 8 has 9 bus and 11 walk.

(b) Classify travel method, number of siblings and journey time to the nearest minute. Explain the classification of the time variable. [3]

(b)

- Travel method is **categorical**.
- Sibling count is **discrete**.
- Journey time is **continuous**, because intermediate times are possible despite rounding the displayed reading.