Association, correlation and causal claims

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the worked example, then show each step in the practice questions. Show the mathematical steps. A calculator, graphing tool or CAS may be used to check results where useful.

What you will practise

• Investigating association between two variables

Useful starting skills: Relevant General Mathematics Units 1–2 arithmetic, algebra, statistics, matrices and networks.

Choose the comparison for the variable types: two-way percentages for categories, side-by-side numerical summaries for groups, and scatterplots for paired numerical values.

Pearson r describes the direction and strength of a linear association. It does not establish causation and can be sensitive to outliers.

Worked example

Among 40 walkers, 30 support a proposal; among 60 drivers, 30 support it. Compare support proportions.

Use within-group denominators 40 and 60, not raw supporter counts.

Answer: 75% of walkers versus 50% of drivers.

Try it yourself

Name: _____ Date: _____

1. Calculate row percentages for counts 18, 12 in group A and 12, 28 in group B.

2. Interpret r=-0.92.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. A 60%, 40%; B 30%, 70%.

Divide by each row total 30 or 40.

2. Strong negative linear association.

As one variable increases, the other tends to decrease in a near-linear pattern.

Curriculum reference: General Mathematics Units 3–4 — Investigating association between two variables

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