Scatterplots, association and prediction

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 relationships between two numerical variables

Useful starting skills: Year 10 algebra, percentages, statistical displays, geometry and trigonometry.

A scatterplot pairs each explanatory value x with its response y. Describe direction, form and strength before fitting a line.

A fitted line can support predictions within the observed x-range. Association alone does not establish that changing x causes y to change.

Worked example

For predicted test score $y=40+3h$, where h is study time in hours, interpret the slope and predict y at $h=4$.

Each extra hour adds 3 to predicted score; $40+3\times4=52$.

Answer: 3 score-points per extra hour; $y=52$.

Try it yourself

Name: _____ Date: _____

1. Which is explanatory when investigating rainfall as a predictor of tank volume?

2. Plot(1, 3), (2, 5), (3, 7), (4, 9) and describe association.

Answers and explanations

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

1. Rainfall.

Rainfall is used to predict the response, tank volume.

2. Perfect positive linear association.

All points lie on $y=2x+1$.

Curriculum reference: General Mathematics Units 1–2 — Investigating relationships between two numerical variables

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