Understand least-squares fitting as a model of a linear association.

Key knowledge | Free preview

Learning target: Understand least-squares fitting as a model of a linear association.

Least-squares regression chooses the line that minimises the sum of squared vertical residuals. Pearson correlation measures linear association; its square gives the proportion of response variation explained by the fitted line in this setting. Neither quantity establishes causation. Keep sufficient coefficient precision for later predictions and interpret the slope in the variables' units.

Try the mathematics

Task 1. For x=1,2,3,4,5 and y=2,4,5,4,5, calculate x-bar, y-bar, Sxx, Syy and Sxy. Use them to find r, the least-squares line and r^2.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/aspire-internal-gm-u34-o1-aos1-kk-11/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Units 3–4; Outcome 1; Key knowledge; Data analysis; bullet 11; p. 90.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u34-o1-aos1-kk-11. This is an internal identifier, not an official VCAA code.

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