Explain why a transformation can make a non-linear association suitable for linear modelling.

Key knowledge | Free preview

Learning target: Explain why a transformation can make a non-linear association suitable for linear modelling.

Residuals are observed values minus fitted values. A systematic curve in a residual plot suggests the straight-line form is unsuitable, even if correlation appears strong. Transforming one variable may straighten the relationship. Fit again on the transformed coordinates, inspect the new residuals and translate predictions back to the original variables and units.

Try the mathematics

Task 1. Data are x=1,2,3,4 and y=3,9,19,33. A least-squares fit in x is y-hat=10x-9. Calculate its residuals and explain their pattern.

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-12/

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 12; p. 90.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u34-o1-aos1-kk-12. This is an internal identifier, not an official VCAA code.

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