Inferring a shifted model from data

Key knowledge | Free preview

Learning target: Identify possible model families from graphical or tabulated data features.

A vertical shift can hide the constant ratio of an exponential pattern. Consecutive differences may reveal the decay ratio before the long-run level is known. Circular data require a midline, amplitude, period and phase. A successful fit is a candidate model; meaningful interpretation and comparison with later observations are still necessary.

Try the mathematics

Task 1. At t=0,1,2,3, a measured quantity is 18,12,9,7.5. Fit $y=c+A\,r^{t}$ by first comparing successive differences. State the long-run value and predict y at t=4.

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-mm-u34-o1-kk-07/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key knowledge; bullet 7; p. 102.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o1-kk-07. This is an internal identifier, not an official VCAA code.

Free preview: share intact with attribution, without charging. Full resource rights are not included.

Original independent practice. Not published or endorsed by VCAA. The activity is not an official SAC, examination or complete treatment of every clause of a broad curriculum requirement.