Explain how a first-order recurrence generates sequence terms.

Key knowledge | Free preview

Learning target: Explain how a first-order recurrence generates sequence terms.

A geometric sequence repeatedly multiplies by the same factor. The factor describes the retained proportion, not the percentage change itself. Its explicit rule uses a power whose exponent counts completed transitions. Tables and discrete graphs help distinguish growth, decay and oscillation; long-run conclusions also depend on the sign and magnitude of the factor.

Try the mathematics

Task 1. A sequence starts at 160 and retains 75% each step. Write its recurrence and explicit rule, then tabulate n=0 to 4 and describe its long-run behaviour.

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-u1-o1-aos2-kk-02/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Unit 1; Outcome 1; Key knowledge; Arithmetic and geometric sequences, first-order linear recurrence relations and financial mathematics; bullet 2; p. 31.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u1-o1-aos2-kk-02. This is an internal identifier, not an official VCAA code.

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