Solve first-order linear recurrence problems recursively and with explicit formulas

Key skills | Free preview

Learning target: Solve first-order linear recurrence problems recursively and with explicit formulas.

A recursive rule generates a term from earlier information, while an explicit rule gives it directly from its index. For a first-order linear recurrence, subtracting a fixed point often produces a geometric sequence. Always state the starting index and distinguish a term limit from a series sum.

Try the mathematics

Task 1. Let $t_0=3$ and $t_{n+1}=0.6t_n+8$. Find t_1,t_2, the fixed point L and an explicit formula. Explain the limit.

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/sm-u1-o1-ks-04/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 1; Outcome 1; Key skills; bullet 4; p. 62.

The learning target is a concise paraphrase. Aspire reference: sm-u1-o1-ks-04. This is an internal identifier, not an official VCAA code.

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